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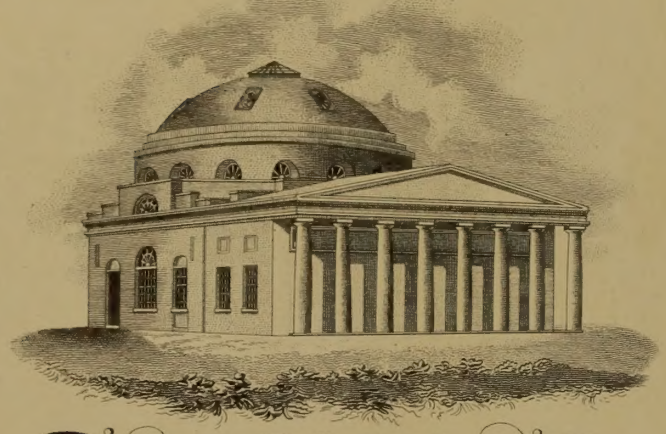

University of Maryland

University of Maryland Theses

Early Doctor of Medicine and Doctor of Physic Dissertations with Corrected Tables of Contents

These manuscripts described as either an Inaugural Dissertation or an Inaugural Essay were presented to the University of Maryland for the Degree of Doctor of Medicine and/or Doctor of Physic during the years 1813-1887. The individual dissertations were bound together during the 1940's. The original tables of contents for the bound volumes contained multiple errors in authors' names, titles, and/or years. To address these errors, an additional "Corrected Table of Contents" has been inserted at the beginning of each volume.

The project team who investigated and corrected the tables of contents were Richard J. Behles, Historical Librarian/Preservation Officer; María Milagros Pinkas, Metadata Management Librarian; Angela Cochrane and Carol Harling-Henry, Resources Division; Sarah Hovde, Abra Schnur and Megan Wolff, Services Division.

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UNIVERSITY OF MARYLAND

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[1] Pencil drawing diagram copied from Gray's Anatomy.

HSHSL 2012 for the UM Digital Archive. Sources consulted for corrections: Original Dissertation; University of Maryland Medical Faculty, Matriculation List, 1851-1892; Cordell, Eugene F. "University of Maryland, 1807-1907" (New York : The Lewis Publishing Company, 1907), Volume 2.

Author	Title	Notes
Pitman, Samuel S.	Strychnia	
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UNIVERSITY OF MARYLAND

THESES

1882(A)

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Thesis.

By

James H. Houston. Jr.

Subject

Scarlatina

Respectfully Submitted to the

Faculty of the University

School of Medicine

Baltimore Maryland.

Feb. 7th 1882.

WM
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Scarlatina — Scalet Fever.

I will commence by saying something that will probably strike the faculty as original; namely that I will not have anything to write, but what I have heard from my instructors and what I have read in different works on practice of Medicine.

I will not mention the names of my instructors, because I might quote them incorrectly, as I have no notes on their lectures. I guess I ought to apologize for my theme being so long, but I could not make it shorter and do my subject justice.

I regret that I have not heard our learned Profesor of diseases woman and children, lecture on this disease.
My reason for selecting this subject, is that it is one that I wish to become thoroughly acquainted with, because of its great prevelence and distructiveness at my home, Kentucky.
Scarlatina — Scarlet Fever.
Definition — It is an acute infectious disease, self limited, characterized, by an affection of the throat and albuminuria and terminating in desquimation of the epithelium.

Causation — Scarlatina is propagated by a poison which adheres to material substances by which it may be carried at a distance, from one sick with the disease to a healthy person.

Physicians may carry the disease in their cloths when visiting a child with the disease, to other children. And for this reason a physician should be careful when attending a case of this kind. He should always change his cloths after visiting his cases of scarlatina.

Some claim that the disease can be carried in a letter toys &c. I hardly agree with them in this. I think the persons supposed to have been attacked with scarlatina, from this source, might have had an exposure to the disease, not known to the physician.

The disease may remain in clothes apartment &c for months and then a person going into the room, where the clothes are, or where a person has been sick with the disease, take it. The atomic particles of exfoliated epidermis

and exillations from the throat, may be the medium of communication of this disease. These may retain the virus weeks after the fever has terminated.

The period of inculation varies; it has been known to appear in a day after exposure. The longest time in which the disease may appear after exposure, is about twelve days. The average time is two to six days. I know of an epidemic of this disease, which occured at my home, where there were four little

boys in one family, that took the disease and it was only fifty five years from the time the first one attacked, until all were dead. And that was a peculiar form of the disease and the children were severely stung.

Scarlatina occurs most frequently from the age of two to five years. It occurs frequently from five years up. It is not frequent in adults, but may occur in old age. It does occur in children under two years of age, but it is doubtful if

ever occurs in a child under six months of age and seven in the foetus

Parturient woman are liable to it.

A physician visiting them and cases of scarlatina at the same time, should be careful, for there is danger of communicating it to them.

It does not occur in the negro more often than it does in a white person.

The susceptibility to it is increased by lowered vitality from other diseases and unfavorable hygienic conditions.

Scarlatina may be sporadic but is more often epidemic.

The epidemics vary in type. Some are mild and some are malignant. Some may be attended by severe complications. And these differences make the treatment in different epidemics variable. In mild forms, there may, here and there, be a case of some severity. And in malignant forms, there may be cases of exceeding mildness. The contagium in mild form, is as efficient as it is from malignant.

The fever usually occurs but once in the same individual, but there may be a second attack. I do not think it ever attacks the same person a third time.

Secondary attacks are usually fatal. A healthy person being inoculated with the blood, or with the pus from the vesicles, of a scarlatina subject is apt to take the disease.

Ethological Anatomy.

The eruption first appears upon the chest and neck and then rapidly

extends everyway. It may be distinct and around each a border of normal skin, or it may be confluent; the hold surface a brilliant red, with punctuations of a deeper red.

The eruption is due to a hyperemia, but when the spots coalesce there are blotches, or it may be general. Mothers will say they see it under the skin, but they do not for it is in the skin.

The eruption may appear in particular localities may be on the face trunk or extremities. Or it may only appear on the joints.

A miliary eruption of minute vesicles may appear on the forehead, importing to the skin a roughness.

Along with the eruption is the morbid condition of the throat.

The pharynx, soft pallet and tonsels will become redened and swollen. An inflamation of these parts may occur, which is designated Scarlatina anginosa.

If this does occur the swelling is extreme. The submucus and mucus layers, become infiltrated with puss cells. Abscess

form especially in the tonsils. It may terminate in ulceration and gangrene, and these may extend in all directions. The mouth may become gangrenous. The inflamation may extend up the eustachian tube, to the ear, causing inflamation of the middle ear, perforation of the drum and in some, cause of the bones.

A diphtheretic process may also ensue; so common is it that some think, there exists a close relationship between the two diseases.

The tongue has a charac-

-teristic appearance in this disease. It is coated with a yellowish white fur, which increases towards the base. Through this coating enlarged papillæ project. About the third day entire desquamation of the coating and epithelium takes place; leaving the tongue a deep red, and having the appearance of a ripe strawberry. — Called the strawberry tongue.

I will not undertake to describe the anatomical changes in the kidneys as it will engross too much space.

It is considered by some as a part of the scarlatina process, but I do not agree with them I think it is a sequel. General dropsy and the accidents due to uremia are usual concomitants of kidney disease in scarlatina. Closely connected with the kidney affection is the attacks of inflammation of the sinoval membranes of the joints.

Peyers packes and the solitary follicles are often found swolen. There may be found ecimosis in the gastric and in

-testinal mucus membrane, but it is rarely abundant.

Symptoms.

The symptoms of the different stages will be first noted and then the complications that are liable to occur. I will make no division in this account of the symptoms of this disease but speak of them as they occur.

1st is the stage of invasion. The attack may commence with a chill. The chill is more common in adults than in children.

There may be epistaxeris. I' children there may be violent convulsions not dependent on uremia.

There is fever with or without the chill; the temperature rising to 103° 104° or 105° Fahr. in a short time and may even go up to 107°. The pulse rises to 110 120 and sometimes even so high as 175. In most cases there occurs in the first twenty four hours severe vomiting. It usually commences before the appearance of the rash but not always.

The bowels are usually a little constipated but not always, for there is sometimes a slight diarrhoea. Through this period the fever is usually continuous in type. In very mild cases the symptoms may be so slight that the patient may not take to bed. The average duration of this stage is about 2 or 3 days. The eruption usually makes its appearance on the second day. It may appear in a few hours or on the other hand it may not appear for three or four days.

Redness of the face may be noticed in this stage with or without fever.

Stage of Eruption. This stage in children is sometimes ushered in by a convulsion which is not at this period chronic hydrocephalus. The eruption makes its appearance first upon the chest and back and is rapidly diffused over the whole surface of the face and body. At this time the scarlet color of the face contrasts strongly with the pallor of the lips. In severe cases the eruption may

not be completed untill the fourth day.

When the eruption is completed in a short time, it is punctiform, each spot surrounded by an area of normal skin. The redness momentarially disappears when the skin is pressed down to reappear when the pressure is removed.

Generally on passing the finger over the redened surface it feels smooth but sometimes there is a sensation of minute papules. The integument is sometimes swollen this is noticed on the face feet & hands.

If the throat affection is severe, the cutaneous eruption is apt to be slight. The tongue is coated with a yellow white fur. This and the epithelium peels off, about the fourth day, leaving the tongue entirely red. Called the strawberry tongue. There is no longer any vomiting or epitifa. There may be diarrhoea, but usually the bowels are constipated. In severe cases there is severe headache. There may be delerium and unconscience at night. I do not believe there are cases free from throat affection.

If the throat affection be slight, there is only a sprinkle redness over the tonsels, pharinx, and soft palate. In worst cases there is more or less swelling in the tonsels, with a whitish exudation. In proportion to the throat affection, there is pain in deglutition and the voice becomes nasal. The submaxillary and the superficial glands at the angle of the jaw, are frequently swollen and the whole space, from the chin to the sternum, becomes obliterated. There may be sloughing and gangrene may occur.

The fever is generally increased, after the appearance of the eruption. The frequency of the pulse and the heat of the skin, is more marked than in any of the fevers. The pulse rises from 100, 120, to 140, and even higher, in extremely severe cases. The skin is hot and dry. The temperature rises to 105° Fahr. and much higher in severe cases. The temperature has been known to go as high as 112° Fahr. The eruption is barely completed, before it begins to fade, on the parts where it first appeared. It at least does not remain stationary longer than a half-a-day.

The gradual disappearance of the eruption takes place in 2, 3, to 4, days and accordingly, the time occupied by the eruption, varies from 3, to 7, days; though it may be shorter, or longer.

Stage of Desquimation.

This stage commences with the decline of the eruption. In mild cases the febrile movement diminishes, with the commencement of this stage. The fever declines by lysis, — by gradual shortening of the remissions, and shortening of the exacerbations. The pulse declines with the fever and the other symptoms also.

The pyrexia increases. The albumin disappears. And thus, in about ten or twelve days, convalescence is established. This course is through a mild case as this. Albuminuria may occur in this stage. It occurs more often in this stage, than in the stage of eruption. The presence of albumin in the urine in this stage, as well as in the stage of eruption, may, or may not, be indicative of important renal trouble.

The eruption may appear in this stage.

The cuticle comes off in

large flakes or scales of larger or smaller size. A part of the foot, or hand is not uncommon. Desquimation may take place several times. The duration of this stage is indefinite. It may end in five or six days, or it may continue for two or three weeks. It is generally completed in ten or twelve days.

Certain cases of scarlatina, are characterized by extreme gravity of the symptoms, at the commencement of the disease. The temperature and pulse are much higher. Convulsions, coma

great restlessness at night, and other symptoms, denoting the severity of the disease.

Death may take place in a few hours, even before the eruption appears. This form of the disease is truly malignant.

The gravity of the case is not due to any complications, but to the virulency of the poison.

It is sometimes the case, when the throat affection is subsiding, the glands are returning to their normal; a new disturbance arises in the glands. They commence swelling and suppu-

swell to a considerable size;
fever comes on and convalescence
is frustrated. This excitement
is secondary to an exacerbation
of renal trouble.

Convulsions, coma and delirium, may be developed as effects of uremia. Usually in these cases, the urine is highly albuminous. But as I said before, albumin in the urine, does not necessarily indicate, disease of the kidneys, if the quantity be small. On the other hand grave disease may exist in the kidneys, where there is no albuminuria.

The presence of casts with red or white corpuscles, in the urine, is more significant, of renal disease than albuminuria.

The danger of uremia is proportionate to the scanty excretion of urine. Clinical facts show that pneumonia involves a special tendency to Renal disease, not only as a concomitant, but as a sequel. General dropsy sometimes occurs during the progress of the disease, as well as afterward. Symptoms pointing to uremia, in addition to the symptoms already named are

Cephalgia, disturbance of respiration; without either bronchitis, pneumonia or any other pulmonary lesions.

Uremia occuring as a concomitant, or as a sequel, may occur without albuminuria, or dropsy. Hence the importance of examining the urine, not only as regards the albumin, but as to casts and the quantity of urea.

An extension of the inflammation through the eustachian tube may occur; usually as a sequel. It may extend to the middle ear and perforate the drum and cause discharge from the ear.

Hemorages may occur in various situations in some cases.
They are not always fatal.

Complications that have not been noticed are endocarditis, pleuretis, pericarditis, articular rheumatism, and vaginetis.

Scarlatina has various sequels. One that has just been noticed, follows this disease, in a great many cases. The time for its occurence is from ten to twenty days, after the desquimative has set in. Acute Nephretis, after Scarlatina, is not apt to be chronic.

Diagnosis. — Stage of invasion in Scarlatina, is one to two days; in Small pox three days; in Measels four days.

The invasion stage of Scarlatina differs from that of small pox, in duration, in the initial rashes, in the higher temperature, in the coincident angina and swelling of the lymphatics.

The eruption of Variola is first red spots, then papules, then vesicles, and finally pustules. They appear first upon the face, forehead, and head.

The eruption of Measels, is

redish lenticular spots; slight-
-ly above the skin and import-
-ing to the hand when passed
over them a sence of roughness
That of varicella vesicles. That
of roseola rose red spots like
measels, but not so rough and
prominent. That of scarlati-
-na bright red spots and dif-
-fused redness, with punctua-
-tions of deeper redness.
The eruption of small pox
has on its appearance an in-
-durated feel as if bird shot
were in the skin; that of
varicella has to the touch a
sencasion of a vesicle elevated the
surface; that of measels imparts

to the touch a sense of rough-
-ness and, that of scarlatina
has no roughness.
Scarlatina is accompanied
by throat affection and
sometimes swelling of the
salivary, & sublingual,
glands and the cervical glands
also. Measels desquimates
in fine scales and is not ob-
-served sometimes. Scarlatina
desquimates in large flakes
and is very distinct.
Desquimation does not take
place in small pox until
the pustules have matured
and crusts have formed.

Prognosis.

Any prognostication in regard to the termination of this disease, should be guarded, because there is no disease so uncertain.

The case may be considered manageable, when the initial stage is not severe, the eruption appears at the proper time and attains it's maximum on the second or third day; the throat affection is not severe; the temperature is not above 103° Fahr; the pulse not exceed 140, the cerebral symptoms consists only of a transient

delerium at the highest point of the disease; the temprature regularly declines as the desquimation proceeds normal-ly and no other symtoms arise.

There may be mild com-plications exist, without life being in danger. In malig-nant cases the disease is rapidly fatal.

The symtoms that denote imminent danger from the intensity of the disease, are excessive frequency of the pulls, hyperaxia, factita-tions, active delerium and prostration.

The mode of dying in these cases being by asthenia.

The prognosis is unfavorable, in cases in which the throat affection is severe. Great enlargement of the glands and suppuration of them is of great danger. When the space between the chin & throat is obliterated, by the swelling, it is very apt to terminate fatally. If there is gangrene of the mouth and throat, recovery is the exception, rather than the rule.

The hemorrhagic form is one of the most formidable of this disease.

Uremic convulsions and coma, involve imminent danger. Uremia may occur in cases that are considered mild. The presence of albumin, should excite apprehension, and casts also but the immediate danger, is ascertained, by the deficiency of urea. The patient is by no means safe, after the disappearance of albumin, if there remain casts in the sediment, and the specific gravity be low and the quantity of urine is small.

The prognosis is exceedingly grave, if scarlatina occur in the puerperal state.

Permanent deafness may result from the affection of the ear.

A fatal result may be due, to the formation of a front clot, in the right cavity of the heart.

The mortality varies much in different epidemics from ten to forty per cent — and is determined largely by the hygienic surroundings, and especially by age. Infants succumb in a larger proportion than older children and young adults.

Treatment.

As scarlatina is a self limited

disease and as we possess no specific against it, our treatment must necissarially be symtomatic. During every epidemic there are cases so mild, that good hygenic treatment is all that is necissary.
Such treatment as bloodleting, blisters, emetics, and mercurialism, should be avoided; because they are never indicated and must necissarially prove hurtful.

For the initial fever, when the temprature is high and the pulse is rapid; to acoonte cool in doses of half drop to a drop in a teaspoon full of water

every hour; or tr. digitalis from a drop to ten drops every two hours, are the most useful remidies. If the stomach is irritable and will not bear these drugs, a combination of carbolic acid and tr. iodine is highly serviceable. If constipation exist a small dose of calomel, or an enema will prove efficient. If the eruption is tardy in making its appearance, from two to three drops of the tr. of Belladona every two hours, is the appropriate remidie; or if this fail turpentine. Extreme pruritus of the skin,

And pungent heat of the surface, can be relieved by frequent injections. Sand will answer, but Glycerine and the rose water ointment, or vaseline to which, to each ounce, five drops of Carbolic acid be added

The external treatment by means designed to abstract heat, is important. When the temperature exceeds 103° it rapidly exhausts the strength, and involves great danger. The temperature can be reduced by injections and cold water externally. The cold water is not required unless the temperature

exceeds 103° and if it exceeds 105° it is urgently needed. It has been applied in different ways. The best way to apply the water in most cases, is the use of cloths wrung out of ice water, and applied to the head, throat, arms &c. This will generally reduce the temperature two or three degrees. If this does not reduce it enough, the wet packs can be used, that will reduce the temperature two or three degrees, in thirty or forty minutes. Some prefer the cold bath, but I think the

are some objections to its use.

In malignant cases and when the intensity of the disease involves a tendency to death by asthenia. The chief reliance must be on sustaining measures. Alchohol is indicated in proportion to the frequency and feebleness of the pulse together with general prostration. But Alchohol should not be given indiscriminately should watch its immediate effects as in other fevers.

Eggs, wine whey and milk punch, are eligible forms for nourishment and stimulant.

The treatment of the throat is important. Chlorate of Potassa is a good remida, in these cases, from one to two drachms, may be given daily. Stimulating or caustic applications should not be practiced, unless there is sloughing and gangreen. May use solutions of nitrate of silver, the mineral acids, chlorate of potassa and carbolic acid, if there occur. For external treatment cold cloths applied around the neck. If the fever be mild, a flaxseed poretice, applied around the throat, may be preferable.

The treatment of the Faucial Service is of great importance. For this I think the Hand atomizer is the best plan of treatment. Six to twelve compressions of the bulb, if Richardsons Hand tube instrument be used, will be sufficient, if the following mixture be used;

℞. Acid Carbolic ℥xij
Glycerine ℥ij
Aqua Calcis ℥vi. M.

This should be employed every two or three hours. For infants dilute the mixture one half with water.

The muco purulent discharge from the nostrals, with the pharingial swelling, should be treated, with warm lime water with one or two hundred parts of carbolic acid, thrown in with the hand atomizer.

The abscess along the neck, should be opened early, as their presence will cause trouble.

The renal affection, is often more dangerous than the scarlatina itself. In these cases, active hyperemia of the kidneys; having an inflamitory character, diuretics which stimulate the organs

should not be used, at least not untill after this pathological state has abated.
The best of the diuretics in these cases is the digitalis.
One tea spoon full of the infusion should be given every fourth hour. I think it well to give it from the first day.
As the eliminative functions of the skin and the mucus surfices of the intestines, are vicarious with that of the kidneys, diphoretics and purgatives should be given. Diphoresis should commence by the warm mustard foot, or general bath, and then put to bed & covered.

If perspiration is not promoted in this way, it is well to employ hot dry, or moist air, letting it surround the patient. Other diaphoretics that can be employed are the acetate of ammonia and potassa, the bitartrate & citrate of potassa &c. These may be employed singly, or variously combined. But if they are employed with the surface cool they act more as diuretics, than as diaphoretics. The muriate of Pilocarpine is an efficient sedative and a useful emetic, in scarlatinous dropsy, if employed when the heart's action is strong.

The pilocarpin can be given to a child two years old by the mouth in doses of one twentieth of a grain. Or it may be given hyperdermically in doses of one twentieth of a grain to a child five years old. It should be used with care or not at all.

For the older robust children with scarlatinous uremia and serious effusions few remedies are so good as the hydrogog cathartics. A good prescription for this cases when you wish to remove the urea or serum is; R. Podophillian gr. Jacob alba 3j Div in chart No. viii xii Give one according to circumstances

If the patient be anemic, & enfeebled and the symptoms not urgent, cathartics or other depressing agents, should not be given. Convulsions may appear at the commencement of the disease and not denote any renal complication, but they are sometimes due to uremia. Whether they are due to uremia or not, the inhalation of chloroform is indicated, and a warm bath is very good practice in these cases.

In convulsions that sometimes appear during the kidney complication called uremic convulsions- should be treated

not only by the inhalation of chloroform and warm baths, but the hypodermic injection of sulphate of Morphia, one grain of Magendie's solution, should be given. The objection that has hitherto existed against the employment of Morphia in these cases, if not well founded Restlessness and vigilance if not relieved by means of treatment already noticed, may require opiates. But the opiate must be administered cautiously to children.

With reference to the heart clot the Carbonat of Ammonia, in small doses, frequently repeated, may be used.

The conditions of the ear should be looked into, in and after scarlatina. Daily syringing the ear with injections of tepid water and soap, will usually prove sufficient. But if the affection continue in spite of this, the mild astringents should be employed. A leech applied at the tragus, is very good in these cases sometimes.

The drums of the ear should be inspected daily.

I will speak briefly of Erysipelas. The most reliable prophylactic is, isolation and the use of disinfectants. I believe in the use of Belladonna.

To the Dean and Faculty
University of Md.

Thesis.

Penetrating wounds of the Abdomen.

P. H. Comas
Baxley Geo.

1882

Penetrating wounds are of two kinds, incised and punctured, under the latter denomination are included lesions from firearms and pointed weapons, as bayonets, swords and dirks. In their dimensions these lesions vary from a mere puncture, to an opening several lines in length. They are of various forms, as oblique, (which is most common) transverse, or even longitudinal. Gunshot wounds are generally somewhat circular and they too vary in their dimensions according to the size of the vulnerating body. The parts most liable to injury are the jejunum and ileum, their great length, floating condition render them peculiarly liable to injury. The large as well as the small inte-

-tines may be implicated as in a case recorded in Gross's Surgery of a man who received a pistol wound, the ball entering a short distance below the umbilicus a little to the left of the middle line. Completely perforated in its upward and outward passage, the ileum, jejunum, duodenum and arch of the colon, making thus eight orifices in its passage through the abdominal cavity. The symptoms of penetrating wounds are local and constitutional. Local symptoms are severe local pain soon radiating over the abdomen. This is not pathognomonic as cases occur in which the pain is slight are entirely wanting. Constitutional symptoms are shock or collapse in proportion to the nature and extent of the wound,

a mere prick uncomplicated with hem-
-orrhage will not produce the same
amount of shock as a wound of larger
dimensions. The countenance is deadly
pale. The extremities become rapidly cold,
and soon the surface of the body is [illegible]
ed in a cold and clammy sweat.
The pulse is small and feeble, flutter-
-ing, and may be altogether unpercep-
-tible. Thirst is a prominent symptom.
Respiration is slow and feeble with
frequent sighing, and the patient
may hear buzzing noises in his ears.
Not unfrequently there are involuntary
discharges from the bowels with nausea
and vomiting mixed with blood, and
is symptom of value to show that the
intestines are complicated. Generally
there is an escape of air, feces,

bile, and mucus through the external wound and is a symptom of the greatest value. Tympanites may appear due to an escape of air in the peritoneal cavity, causing a hollow drum like sound on percussion, with difficulty of respiration due to pressure on the diaphragm. The distension is sometimes enormous, and there may be a collection of gas in the connective tissue of the abdomen which may diffuse itself in every direction, forming a puffy elevation, crepitating on pressure, and followed by an escape of gas if it be punctured. Hemorrhage is formidable complication and may proceed from the aorta, venacava, or epigastric artery. It may come proceed from the vessels of the

mesentery and omentum, unless the external opening is large it may not appear, but pass back into the peritoneal cavity, diffusing itself extensively among the surrounding tissues and viscera, and descend into the peritoneal cavity of the pelvis. The diagnosis is not always easy, especially so when the wound is too small to permit an exploration, but if the bowel protrudes the diagnosis is easy enough. If it does not, then we must take into consideration the size, shape, and force, which the vulnerating body possessed, also the relative position of the viscera at the wounded spot. We should consider the direction of the wound and also the

thickness of the abdominal parietes.
If there is an escape of bile, mucus, ingu-
-ta and fetid air the diagnosis can be made.
be made. Should we explore the wound
when these signs are wanting? At that
point surgeons differ. One says explore it.
Another says explore it and you violate
all principles of surgery!! The prac-
-titioner will often find himself at
a loss in what manner to proceed if he
should follow the dictates of his text
books. He should be governed in all things
by good plain commonsense (the
rarest of all mental attainments)
and if we should think proper to do
so I for one can see no [illegible] in do-
-ing so provided we do not injure
the tissues by a sharp pointed
instrument, as that would only be

adding fuel to the flame which would soon burst forth in an unquenchable manner, Let us see what we could find by an exploration with our finger, if we could see if there was concealed hemorrhage, the course, depth and extent of the wound, and secondly whether or not there was great damage done to the soft parts and also whether or not the viscera was wounded. These facts I think should justify us in making an exploration, and no true surgeon will let any means pass, by which he may find out the nature and extent of the wound. Prognosis of penetrating wounds is influenced by the nature and extent of the wounded viscera. The

the most common cause of death is peritonitis, and if there occurs the slightest fecal effusion it will allmost inevitably be followed by an attack of peritonitis which will prove rapidly fatal. Wounds of the small intestines are more apt to be followed by fecal effusion due to a fluid condition of thier contents, and statistics show that during the late war wounds of the large intestines were recovered from while wounds of the small proved nearly allways fatal. Gunshot wounds, and wounds with much surrounding contusion are more apt to be followed by an effusion than any other class of wounds, due to the [illegible]

-sion of the mucous membrane.
They are therefore the most fatal
of all class of penetrating wounds.
Hemorrhage is a frequent source of
death, due to the division of an
artery, or vein. Shock proves fatal
is some instances uncomplicated
with hemorrhage. Before going into the
treatment of this class of wounds
let us examine how nature repairs
the damage of a simple incised
wound unassisted by the surgeon.
Dr Gross in his experiments on
dogs found that when an opening
is six lines in length, whether tran-
-sverse oblique or longitudinal, there
is allmost invariably an escape of
the contents of the bowel. When the
wound was of less dimensions than

danger would not occur. Why I. [illegible]
found that a longitudinal incision
two lines and a half in length
immediately contracted to one line
and three quarters, with a sufficient
degree of eversion of the lining membrane
to close the resulting orifice. In a
similar wound four lines long, diminished
in a short time to three
lines [illegible] and a half in width.
It assumed an oval shape, the inner
tunic as in the previous experiment
as everted so that the orifice
was not perceptible. In other experiments a transverse wound was made
two lines and a half long, was reduced almost instantaneously to two
lines in diameter with retraction of
the muscular and serous coats, with

eversion of the mucous. These experiments show that a process takes place similar to that which takes place in a wounded artery, the latter to prevent the effusion of blood, the former effusion of fecal matter. Gunshot wounds are not followed by the eversion of the mucous membrane, due to the contused state of the edges of the wound, they are exceptions to the general rule. It has been shown also that wounds of an incised nature, uncomplicated with fecal effusion heal by themselves by adhesion of their edges to the surrounding parts or by gradual approximation of their lips due to a deposit of lymph. And Fraser has shown ex-

-permanently, and his investigations has been confirmed on the human subject, that wounds are closed by lymph, not only thrown out by contiguous peritoneal surface actually wounded, but from that of neighboring coils, so that the opening in the gut becomes permanently glued and attached to surfaces in the vicinity. But does nature allways do this unassisted by the surgeon? We know she does not, and we are advised to stitch the intestine when it protrudes, employing for that purpose the continued, or interrupted suture, with the modification of Gely or Lambert of the latter, and to return it to the abdominal cavity, with milk and ice in limited

quantities to [illegible], thirst, and opium to relieve pain and paralyze intestinal movement, so that union will take place as soon as possible under the circumstances. We should employ animal ligatures prepared according to Listers method and they should be cut off close and not brought out of the external wound as they would create more or less irritation and consequent suppuration. The patient should be placed in a recumbent position, and the urine should be drawn regularly with a catheter. This is recommended when the intestine protrudes. If it does not and we are [illegible].

good reason to think that the intestine is wounded. What should we do? Mr Bryant says leave the external wound open and treat the patient with rest, opium, and fluid diet. If you close the external wound, you close the only gate through which return to health is possible. Mr Holmes says the same thing thereby letting the patient die from peritonitis due to an effusion of fecal matter or a permanent artificial anus. Mr Gross says it is still a mooted question as to the treatment when the bowel does not protrude. He is in favor of enlarging the external wound and stitching

the side of the wound together. In my opinion this is the only proper mode of treating such wounds. Do we not know if there is the slightest fecal effusion it is followed by an inflammation which is inevitably fatal? Are we then justified in the course recommended by some to "leave the wound alone"? Emphatically no! We should lay open the abdominal cavity and treat the wound the same as if the intestine protruded, employing for that purpose animal ligatures prepared after the manner of Lister. In a paper read before the international medical congress in Philadelphia Dr Dugas of Georgia advocated the enlargement of the external

wound, or if this was impracticable to open the abdomen in the middle line, and ligate all vessels if possible, and stitch the sides of the wound together so as to bring their serous surfaces in contact with one another, then cleanse out the cavity with warm Carbolized water so as to remove all effused material. And if it was a gunshot wound to trim its jagged edges so as to convert it into an incised wound then convert the wound in the abdomen into an incised one which can readily be done by removing an elliptical portion so as to remove the gunshot wound, then treat it the same as an ordinary incised wound.

Does this not appear as the only rational plan of treatment? To my mind it is obvious, and I cannot see how others can support any other plan. But there will always be a serious drawback to this plan on account of wounds of this description are generally received in fights and brawls. If the patient is subjected to this plan of treatment, and it fails to accomplish its object, and patient dies, "We cheat justice they say" for there is a rule to which many a [illegible] [illegible] [illegible] existence, to give the patient the benefits of all doubts, and the doubt would arise whether the doctor or prisoner did the missing. I hope that those days of treating penetrating wounds expectantly

is gone and the more rational mode has took its place. Every day we hear of Ovariotomy being performed and the patient recovers. Is it more dangerous to open a means abdomen than a woman? No, the same law governs both, and we should not hesitate to do what we consider to be our conscientious duty, no matter what others may say, no matter if the law be cheated, and then no word nor though of reproach can cross our minds of not having done our duty. Conservatism is worse than Heroism when it is carried to that point when we know that a lesion exists, and then we permit the patient to die, when

we know there is only one rational plan to treat an wound. We are guilty of criminal negligence. Under the old plan of treatment it was expectancy and death, under the new, drainage and life. Which shall we take? Time will decide.

Since the above was written there was delivered by Dr. J. M. Sims a lecture on peritoneal surgery and it was gratifying to the writer to see that this distinguished surgeon follows and advocates this plan of treatment as the only rational one. He advocates most strenuously laparotomy in this department of surgery, and the opinion of a man with his experience is worth considering.

Thesis of

Jas. M. Craighill.

To the Dean and Faculty

of

The University of Maryland

School of Medicine.

Hemorrhage.

The word hemorrhage may be defined as a flow of blood from its natural channels.

It may take place on the cutaneous, mucous or serous surfaces, or into the interstices of the various tissues, or in the different organs of the body, or into morbid growths, cysts or cavities in the body. When blood flows quickly from an injury, the hemorrhage is called "primary" when it occurs within from twenty four to thirty six hours, it is called "recurring or intermediary" and after a lapse of a period of two days "secondary" hemorrhage.

We have three forms of hemorrhage in the human economy, viz.

Arterial, Venous and Capillary.

The arterial flow may be recognized, by the bright vermillion hue of the blood, due to the fact that it has just come from the lungs, where it has taken on its supply of oxygen and given up its carbonic acid gas; and also that it is thrown out in spurts, from the proximal end of the cut artery, corresponding with each beat of the heart.

The venous flow is slow & steady and owing to its having effete matter and carbonic acid gas in it, in large quantity, has a dark and sometimes almost blackish hue.

The capillary hemorrhage results merely in an effusion of blood

at the cut surface of a wound, it being supposed that this form may occur without the laceration of the walls of the capillaries.

As hemorrhage is so liable to take place at any time, in the various accidents & wounds to which man is subject in his every day occupations, the medical practitioner as well as the Surgeon should be perfectly familiar with all the different modes of stopping the flow of blood; sometimes using one means and at other times another as the case may require. He should carry with him in such emergencies, when he approaches the bleeding patient, a calmness and a serenity that will exist in the

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minds of the friends of the sufferer, as well as of the patient himself, that he has fallen into the hands of one who knows what he is about, and will do for him all that human skill can accomplish. There are few among the laity who preserve their presence of mind under such circumstances; in many cases they become faint and sick, and incompetent to give the assistance that they would willingly afford were they able.

The renowned surgeon, Prof. Samuel D. Gross says on that subject. "There can be no more terrible and "appalling sight to a patient and his "friends, than hemorrhage from a "divided artery, especially when the

"blood is gushing out in a full and
"angry torrent, threatening every
"moment to put an end to existence.
"There is something indescribably
"sickening and distressing in such
"a scene, from which every sensi-
"tive mind shrinks with dismay
"and bewilderment".

It can hardly be supposed that any man graduating in the class of 1852 from the Maryland University School of Medicine, after the able instruction received at that Institution will, in his medical experience in after life, be at a loss what to do when placed in such a position as has been referred to.

I require to take the liberty of quoting

from Prof. Gross, where he speaks
of the case of a man dying in
consequence of the loss of blood:
he says. "His countenance
" is ghastly pale; his pupils are
" widely dilated; he pants & sighs
" for breath; his ideas are vague
" and confused; he is sick at the
" stomach, and vomits; the extremities
" are icy cold; and the whole surface
" is covered with profuse clammy
" perspiration. The thirst is
" usually intense and unquenchable,
" the largest quantity of water failing
" to satisfy the urgent wants of the
" system; excessive restlessness and
" jactitation succeed; the patient
" calls loudly for cold air; paroxysm

"after paroxysm of shivering comes;
"the pulse has perhaps, already been
"long absent from the wrist; the
"eyes assume a glazed and fixed
"expression; the respiration grows
"more and more feeble; and death
"often steals on so imperceptibly as
"to render it difficult to determine
"the precise moment of its occurrence."

When a man thus dies
(after the manner so forcibly
described by Prof. Gross), whether
the time be short or two or three
days elapse before his soul quits
his body, there is generally an
entire absence of pain, the loss of blood
operating as an anæsthetic.

The principal pow[illegible] of

hemorrhage which the surgeon has to deal with is that from the arteries and veins caused by traumatic injury; and to this form and its treatment reference will first be made. Often what at first seems to be quite a great flow of blood from an injured artery or vein will stop of itself, when left in the hands of nature, especially when from a limb, if the limb so injured be raised higher than the body, thus obviously retarding the force of the circulation of the blood in the limb, and enabling nature to carry on its process of clotting the blood more easily.

When hemorrage is thus stopped from a severed artery,

the result is brought about in the following way; the longitudinal layer of elastic fibres (called by Henle the "fenestrated membrane" and on which there is situated a layer of pavement endothelium) retracts, and at the same time the transverse fibres of the middle coat contract and thus diminish the lumen of the vessel. This action goes on in both the distal end of the artery, as well as the proximal end.

Just before the contraction and retraction of the arterial coats, there is a gush of blood; and this flow of blood continues more or less

in a diminished manner for a certain time, until a coagulum has formed upon the orifice of the artery, and in the connective tissue around it.

In this way an obstruction is formed outside the vessel to the effusion of more blood; and while all this is going on without, a clot is forming within the artery, extending as high up as the first collateral branch. Nature usually arranges in this process so that the internal clot shall have the form of a cone, with its apex pointing towards the heart, the base being surrounded by the irregular clot formed without.

In a few hours after this clotting, plastic lymph is thrown out, and thus the two external and internal clots are as it were glued together. In a short time a process of organization commences by which the blood serum and coloring matter of the clot are removed by absorption and then the capillaries of the neighboring parts commence to permeate it and thus organized tissue is found.

This is what takes place when a comparatively small artery has been cut, which the Surgeon is seldom called to see. When the vessel is of larger calibre and the

bleeding cannot be stopped without
resort to mechanical means, then
it is that the laity are glad to see
the face of the often much abused
Doctor of the neighborhood, and
it might also perhaps be added
that at this time they are very
willing, indeed anxious to have the
services of the Doctor or Surgeon
who has spent much time in the
dead house, finding out where
all these various channels of
the body are; even if they have
read in the morning paper of some
horrible grave robbery, and been the
foremost in denouncing such outrages,
as they think them to be, and in doing

means for their prevention.

But to resume, the aim of the practitioner in stopping such a flow of blood, as has been mentioned, should be to follow out as nearly as possible nature's own ways, which are in this as in most other branches of surgery and medicine, the simplest. If the bleeding shows no inclination to stop, the first thing to do is to wash out the wound with water, clearing away all foreign bodies and clots, and sponging with hot water; if this does not stop the flow the wound should be carefully inspected to see where the blood comes

from; if direct pressure wont be efficacious the vessels should either be twisted or ligatures applid.

When the wound gapes, these means can be used; perhaps twisting the small vessels and tying the larger being about the best practice. In wounds of this kind the use of styptics, such as Monsel's Solution is not deemed advisable, as it retards the healing of the wound. Recourse is sometimes had with successful results to the cautery, the hot iron being applied directly to the ends of the bleeding vessels.

When a large artery has been

cut and ligature is necessary, the first thing to be done is to apply pressure on its proximal side, by one of the many means which the Surgeon has at his command. When the wound is in one of the limbs, a pocket handkerchief containing some hard substance as a stick or stone, passed round the limb and twisted so as to bring the hard substance directly over the bleeding vessel, is as good a compress as any.

If the wound be of such a nature that the medical man cannot use ligatures on the vessels, he should cut down on the divided

ends and apply a ligature to both the cardiac and distal ends. When the distal end is not tied, the blood will flow out, as Gross describes it, "as water bubbles up from the bottom of a spring," this being due to the recurrent circulation.

When hemorrhage takes place from a deep punctured wound and the injection of hot water fails to stop it, after the usual cleansing of the wound, there should be applied the "graduated compress" made by laying together a number of pieces of lint, of gradually increased size,

so that the whole mass shall resemble a cone with the apex internal and the base external; and over the outer layer there should be placed a light bandage.

When veins are cut, pressure will usually stop the smaller, and the larger may have a ligature applied as the arteries.

In large surgical operations, as amputations or any extensive cuttings about a limb; the use of Esmarch's bandage, is now quite common, with the advantage of avoiding the large loss of blood, that was usual in days not very long gone by.

I might go on to speak of

the numerous other forms of hemorrhages that take place about the body had I the presumption to occupy needlessly the time of the distinguished Professor, to whom pertains the tedious labor of looking through this poor attempt at writing about something which is so well and fully described in the numerous surgical works of our day. Among the most important of these are the Secondary Hemorrhage Epistaxis or hemorrhage from the Schneiderian membrane of the nose.

Haemoptysis or bleeding from

the lungs.
Haemadelesis or vomiting of blood.
Various forms of uterine hemorrhage,
as the post partum, Menorrhagia
and Metrorrhagia, &c.

Cholera Infantum

The term Cholera Infantum is the subject at present of numerous titles in the various works pertaining to this subject.

The morbid phenomena belonging however to this disease by American writers are described by British & European writers under different names.

Cruveilhier has written a very elaborate discourse in which he enumerates many of the symptoms as occurring in cases of Gelatinform softening of the stomach as found after death. This most probably occurs after death and after a manner as first

Pathology.

This disease appears to combine morbid conditions belonging chiefly to the alimentary canal. In a certain portion of the cases the symptoms appear to be attributable to indigestion. And this results most probably I think from an irritated condition of the epithelial lining of the alimentary canal which is probably most clearly demonstrated by the evacuation and by the condition of this lining as found after death and is probably governed by the law of exosmose from the fact of the abundant quantities of

transuded liquids appearing in the secretions or discharges from the alimentary canal. The intense thirst & iritable stomach which immediately follows the attack together with many other anemic appearances after death assist to establish this as the most probable theory as to the Pathology of the disease. This iritation may embrace various tissues or may be limited to certain locations. As the majority of the cases are presented general gastro-intestinal iritation is to be found embracing the entire epithelial lining of the alimentary canal-

although the disease may be limited to that portion below the Pylorus in which case the troublesome Emesis which so frequently accompanies the disease may be absent if so the Diarrhoea is very persistent. The appetite is badly impaired or more usually totally lost severe colic pains are very troublesome finally progressive emaciation and death. Head symptoms are frequently developed in its course which probably occur from the anemic condition of the brain from the great loss of fluids produced by the abdominal affection. These unfavorable head

symptoms have by some authors been attributed to meningitis but I am satisfied that a careful study of the writings of Gooch and Marshall Hall together with a few careful autopsies the incorrectness of this theory would be made manifest

Causation.

The causation has reference to various relations. Elevation of temperature, improper food or innutrition, living in crowded dwellings in cities where poor ventilation & inefficient drainage and where the sanitary measures are sadly neglected in regard to domestic cleanliness.

the irritation of dentition and the change of diet after weaning all go toward making along list of causes which makes the infant more or less liable to the disease. The disease is almost entirely limited to the summer months and is more prevalent in cities than in the country. The diet of the child after dentition has much to do with the causation and also its ability to withstand the affects of and overcome an attack of the disease. Restriction to insufficient articles of nourishment. Such as arrowroot, gelatin, mucilaginis drinks and various other deficient

articles which are so frequently made use of by more inefficient nurses & mothers. I am also constrained to be belief that infant mortality in the cities is largely due to the use of diluted, sophisticated and artificial milk. To little stress is placed in the quality of the milk used in infantile nutrition and mutch less on the venders of the same. How pertinent the language of Prof Chas. A. Lee. over thirty years ago, "We have inspectors of flour, of leather, of meat, of fresh and salt varieties, of fish and almost every article of merchandise but for milk which is the chief source

of sustenance to the young no in-
spection is made whatever in
their protection". The cities are
polluted with hosts of blood
sapping leeches in the form of
milkmen who yearly murder
untold numbers of bright and
blooming infants in cold blood-
ed manslaughter by the distri-
bution of a noxious & poisonous
compound "called" "milk" which
thousands of fond & loving parents
and an army of Educated Phy-
cians some of whom may un-
fortunately have suffered from
this vile & degraded system of
milk traffic and yet so slows to
take measures for better protection.

Now when we consider that during the earlier months of infancy at least the main reliance is to be placed on milk how very essential that absolute purity of the article should be obtained.

Diagnosis.

The diagnostic features of cholera infantum are generally so well marked that a mistake is almost impossible. But in regard to the form and stage of the disease considerable weight is sometimes in point of time.

Of cases we are aware that in the acute form resembling that of adults arising from change of diet in weaning little babes

would be experienced by the youngest practitioner in establishing a correct diagnosis of the case. but this as contrasted with the slower and more tedious forms arising from dentition and various other developing causes equally slow in their nature more difficulty might be experienced in determining the exact point the disease becomes Cholera Infantum. This sometimes becomes quite a nicety. But this period may safely be arrived at all the appearance of watery dejections from the young child under a foe fage attended with violent [illegible] and

Treatment.

And now we pause for one or two moments; and while we are reminded of the thousands of helpless Infants who annually are the unfortunate victims of the relentless hand of this Terrifying disease sweeping from before our eyes or as it were plucking from our sight those fresh and beautiful buds of early life before the allotted time for the unfolding of those shining petals (mental qualifications) which cause mankind to speak the majesty of his Creator and afford that comfort to

old age for which all parents and guardians so naturally yearn and ask ourselfs why is this? are the means at our hand not sufficient to cope with so formidable a disease or are we ignorant as to their proper use? With reference to the principals which should govern the management of the same affections after early childhood I think the same are applicable to the different forms of disease embraced under the head of Cholera Infantum, with some certain modifications which I will now proceed to refer to. The treatment will in the first

place have reference to the form of the disease presented. In the acute form resembling the cholera of adult life where there is a liability to a rapidly fatal termination by exhaustion from loss of fluids, the patient falling into a state of colapse, the indications are to arrest vomiting and purging, to restore warmth to the surface and to sustain the powers of the system. By the application of heat in some of its various forms to the surface we are enabled to increase the warmth and fulfil the first indication, and the warm bath is I think beyond

all controversy to be preferred.
This however is not to attempted
after the fashion which I have
so often seen by nurses and
mothers put in practice and
I am sorry to say recommend
by Physicians or of putting the
child for a few minutes in a
small vessel barely large enough
to contain the child and then
remove and allow it to take
a chill before the proper cloth-
ing is applied; but a large vessel
holding not less than 15 to 20 gal
of water should be used and
the child bathed half an hour
to an hour or long enough to
restore warmth to it a heart

and warm water added at intervals to keep the temperature at or about blood heat. The temperature of the surrounding room is not to be neglected neither if the child be taken from a warm bath to a room whose temperature is far below no good effects can be obtained from such a proceeding while on the other hand directly the opposite will be the result. But the temperature of the room should be raised to a corresponding approaching temperature and allowed to cool gradually about 75° or 70° F. And in this way alone will benefit be derived from it

warm fomentation or draughts may be applied to the extremities and bottles of hot water may be used to sustain the warmth which has been obtained by the bath. The measures to be employed for the relief of vomiting are a sinnapism to the epigastrium, Creosote in doses of from one sixth to one eighth of a drop in mucilage after each act of [illegible] will often act in a most favorable way, subcarbonat of Bismuth is among the most favorable remedies in doses from ten to twenty five grains and what I think best of all a combination of calomel Ipecacuhan and sugar.

happy results from the administration of the following.

℞ white of one egg
Aqua Calcis ℥iij
Glycerinae ʒiij
Aqua Purae q.s. ad ℥viij
Spice with nutmeg or cinnamon
Mist Sig use as can be borne by the stomach.

with reference to the diarrhoea occasionally a laxative is useful but is to be employed with care but as a rule one or two doses should be given in the course of the duration of the twelve powders of Calomel & Opium referred to of the aromatic syrup of Rhubarb which is no doubt to be preferred for this purpose.

if the dejections denote acidity during the course of examination from time to time chalk in powder or mixture may be employed with advantage to retain an alkaline conditions of the stools. Of the mineral astringents various authors of eminence recommend Bismuth, lead, iron, & nitrate of silver. But I am fully persuaded that we have Articles among the vegetable astringents that act in a much better manner than either of the mineral examples of which I offer Hematoxylon & Tannic Acid. Krameria and Rubus villosus are highly extolled but are dependent on one or both

of the active principles before mentioned and the one I like best is the Hematoxylin from its peculiar properties being devoid of all the irritating properties which we so often meet with in many of the vegetable and mineral astringents. great care should be taken in the administration of the astringents and the secretions should not be checked to suddenly and serious complications prevent themselves in the way of retention of materies morbi in the bowels & thus do harm.

The colic pains are to be controlled by very minute doses of opium in the form of Dovers Powder

Pure milk is the most appropriate article of food and may be made more nutritious by the addition of boiled flour or other farinaceous substance. Raw beef grated to a pulp sometimes acts well in these cases and is worthy of notice to be seasoned with sugar or mixed with some form of Preserve or Jelly. The fullest minute details of nutrition are to entered into by the Physician for there is reason to believe that many children die of innutrition through the ignorance and inapprehension of nurses & mothers. The head symptoms referred claim sustaining measures in the form of stimulants & nutrition

In these affections however we need not relinquish hope of recovery for patients linger a long time on the verge of the grave & finally get well.

The affections even when they do prove fatal do not necessarily involve incurable lesions of structure but a fatal result is due to protracted irritation, exhaustion and innutrition therefore and an assemblage of symptoms as unfavorable as would seem to render the progress as unfavorable as possible, we should not despair while we have life on our side.

A Harold Myers
Prince.
1882

[illegible] axis.

[illegible] these [illegible] muscles, the [illegible] is the one by [illegible] the [illegible] [illegible] and we accordingly find that [illegible] Strabismus, or as it is commonly styled, [illegible] [illegible] is the [illegible] called upon to treat.

The pathology of Strabismus is [illegible] [illegible] to understand. [illegible] [illegible] originally, an [illegible] [illegible] the refractive media and the [illegible] of the retina may be perfect and the fault be due solely to overaction on the part of some [illegible] of the [illegible] [illegible] the movements of the right [illegible].

As a rule, Strabismus occurs in children who are congenitally [illegible]

study the obliquity speedily becomes permanent. The explanation of this is simple. In order to overcome the defect of hyperopic vision, the child is compelled to use his Ciliary muscles and to increase the convexity of his lens [illegible] at distant objects — an exertion of [illegible] action that the normal or emmetropic eye is not required to make. The Ciliary muscles are supplied by the Motor Oculi or third pair of nerves, which also supply the Internal Recti, and hence the functions of these separate muscles are performed in unison through their nervous centers. The use of one accordingly necessitates a corresponding exercise of the other and a given degree of convergence causes and acco-

[illegible] an equal degree of accommodation.
Now as continuous exercise of [illegible]
or set of muscles has the effect to cause an
[illegible] quantity of blood to circulate through
them and as an increased blood-supply
is invariably attended with increased [illegible]
[illegible] and resultant strength it follows that
by frequent use the [illegible] [illegible]
stronger than their antagonistic muscles
and that a certain degree of [illegible]
results which is present even when the
eyes are at rest. When the child begins
to examine [illegible] [illegible] a [illegible] [illegible]
amount of accommodation becomes neces-
sary in order to enable him to sharply
define them. This increased effort brings
into [illegible] simultaneously the [illegible] [illegible]

and a corresponding degree of convergence follows. As there was already present some convergence before the accommodation effort was made, there now results a greater degree than is [illegible] and both eyes being directed to a point [illegible] than the object looked at [illegible] in double [illegible]. In order to avoid this double [illegible] one eye is at once turned [illegible] and [illegible] towards the object. As a consequence the other eye [illegible] to a still greater extent than before.

In case both eyes are equally [illegible] tropic, and both External Rectus of [illegible] similar strength it is a matter of [illegible] which eye is directed towards the object and the [illegible] [illegible] [illegible]

trends against results. But it seldom happens that nature provides us with the eyes of precisely the same degree of strength and the universal law that the inferior must succumb finds no exception here. The stronger eye becomes the working eye and the weaker the squinting one.

We have already referred to the fact that increased action of a part is followed by increased development. The [illegible] of this law is equally true. The squinting eye therefore grows constantly [illegible] and steadily undergoes deterioration. Hence it is of the highest importance that this defect should be corrected in early life, before the eye has become at all impaired for future usefulness.

The operation for Strabismus is [illegible] generally regarded as one of considerable magnitude, attended with all sorts of vague dangers, and offering, at best, the uncertain promise of favorable results. Many parents, therefore, in their dread of imaginary risks and ignorance of or overlooking the fact that each succeeding month but renders the squint more fixed and the eye, in consequence, more liable to permanent loss of perfect vision, catch at the delusion [illegible] that the [illegible] outgrow the deformity as his muscles become stronger or that he will be able [illegible] to more safely undergo an operation.

This idea, unfortunately is fostered by many practitioners and in particular

a moment to the anchoring of the organ.

The orbito-ocular sheath, or as it is more generally called, the capsule of Tenon, encases the posterior portion of the eye-ball, extending nearly as far forward as the margin of the cornea. This capsule consists of two layers between which the Recti muscles glide, adding as forward for insertion into the sclerotic; and these layers being firmly bound to the tendons of the Recti, as well as united to each other in the interspace between the muscles and being at the same time attached to the sclerotic, it follows that when the tendon of the muscle is cut across, the eye does not fly unduly outward by reason of the action of the opposing muscle, but that the region of its divergence is absolutely controlled by

[illegible] or loss of the [illegible] sheath.

The [illegible] of the [illegible] are as follows. The patient having been placed under the influence of an anaesthetic a stop speculum is introduced and a fold of the conjunction [illegible] with a pair of fine forceps, three or four lines from the [illegible] margin of the cornea. This fold is then drawn over the point of a pair of [illegible] scissors and cut through. The elasticity of this membrane [illegible] the edges of the incision to gape [illegible] the capsule beneath and this in [illegible] similarly treated the sclerotic itself is exposed to view. A probe pointed strabismus hook is [illegible] through the opening [illegible]

as to get below the tendon, and after being
swept around backward, gathering up the
tendon as it goes, is brought upward to the
opening against the conjunctiva, which
being seized by the forceps, is carried
the point of the hook when the captured
tendon becomes fully exposed. This should
be severed between the bottom of the hook and
the sclerotic. The hook should then be again
passed downward in search of any stray
fibers that may have escaped, and these
should be also divided in the manner of
scribed above. When all the attachments
have been cut the hook can be brought
upward to the margin of the cornea and
the operation is complete.

The subsequent treatment is extremely

[illegible]

[illegible]

[illegible]

Anaesthesia.

Thesis by

Henry Chandlee

= of =

= Maryland. =

1882.

Surgery had always felt the need of some means by which to relax completely the voluntary muscles and to render the Human system insensible to pain during surgical operations, and various were the means resorted to, such as the hot bath, Tartar Emetic, Tobacco, Venesection &c, in attempting to produce these conditions.

As early as 1795, in France, the inhalation of Ether was used for the relief of existing pain, and a patient is reported as having gone into a profound Syncope from its effects. Unfortunately this fact passed unheeded, and for almost 50 years Humanity continued to suffer.

But to America belongs the honor of being first to apply with success adequate means to the desired end; a discovery, the value of which can hardly be over-rated, and the discoverer of which should certainly be no less honored than the immortal Jenner.

In the year 1844 Dr Horace Wells of Hartford, Conn. first introduced the use of Nitrous Oxide gas as a safe and efficient Anaesthetic. Dr. Wells continued freely to use the gas in the practise of Dentistry; and in the year 1847 introduced it into Surgery. the first operation being the extirpation of a Schirrus Testicle.

But only a year previous, Dr. Morton

and Jackson of Boston had discovered the applicability of Ether for Anaesthetic purposes, and also in 1847 Simpson introduced Chloroform to the Profession; which agents for general use presented so many advantages that Nitrous Oxide Gas was soon superceded, except for Dental operations. Since then many substances have been presented to the Profession as substitutes for these two great Anaesthetics, but none have long retained favor.

The question at once arises, which is the preferable Anaesthetic, Ether or Chloroform? The Medical Fraternity seems at present quite evenly divided in their opinions on this subject.

In its earlier years, Chloroform was by far the more popular, the effects of its administration bring so much more rapid there bring less nausea and disagreeable odor, and the Anaesthesia bring more profound. But as time wore on and an occasional death on the Operating table was ascribed to the Anaesthetic, people began to demand something which would bring about Anaesthesia without danger; and soon many eminent surgeons lost confidence in Chloroform and adopted Ether in its stead.

There is no reasonable doubt but that in certain cases death was due directly to the toxic effects of the Chloroform;

but since Ether has come more into use and greater opportunity has been given it to exhibit its harmlessness, we find it has furnished nearly as large a procentage of deaths as the much abused Chloroform.

Possibly the administration of Chloroform in careless or unskilful hands may be fraught with more danger than Ether but the danger in such cases certainly should not be attributed to the Chloroform. In fact, death from the use of either Anaesthetic would be more rare than from the use of several other drugs in the Pharmacopia if the few simple rules which should always be observed in their admin-

istration were strictly followed.

True there will occasionally be found a case of Idiosyncrasy in which the Anaesthetic in use exhibits itself as an actin poison, but such unfortunate cases present no signs by which this fatality could be even surmised and the Post Mortem reveals no changes attributable to the effects of the poison.

Whenever possible the patient should have fasted for several hours previous to the Operation, and ten or fifteen minutes before should take a moderate dose of Brandy or Whiskey. In children universally bear Anaesthesia so well that this precaution may be omitted. The patient should <u>always</u> be placed in the

recumbent posture and the clothing around neck, chest and waist be freely loosened. The Anaesthetic is most conveniently administered by means of a towel so folded as to make a cone, closed at the top for Ether and held close to the face; open at the top for Chloroform to allow admixture of air. Chloroform should be given slowly, the patient taking full inspirations, and the Anaesthesia pushed until the eye ceases to respond to irritation. The Ether requires to be given in more condensed form until this condition of full anaesthesia is produced, when it may be continued by means of a sponge -

The operator should invariably be provided with a Hypodermic Syringe and several ounces of good Brandy and Ammonia. The Galvanic battery, even if available, is quite as likely, in unskilful hands, to do harm as good should occasion arise for its use. The necessity for the use of tongue forceps need never arise if the Chin be drawn well back, thus straightening the line of the air passages and rendering it impossible for the tongue to obstruct them.

The pulse should be carefully watched and purpleness of the face, stertorous breathing and irregular respiration always indicate danger.

Should respiration cease, action must be prompt indeed! The tongue must be drawn forward and to one side, the head lowered, artificial respiration produced and hypodermic injections of stimulants given at once. An excellent method would be the inhalation of Oxygen gas, but this could seldom be obtained when most needed. Nitrite of Amyl is also recommended for its power of dilating capillaries, thus allowing the weakened heart to the more easily resume its action. These manipulations should be continued long after life is apparently extinct.

An important source of danger is

the vomiting which so frequently occurs; during which, unless the patient be properly managed, some of the matter vomited may be drawn into the Trachea, producing disastrous results.

Of latter years there have been such improvements made in the modes of preparing and administering Nitrous Oxide gas that many of the objections to its use in minor Surgery are now removed. These objections were impurity of manufacture, inconvenience from its great bulk, cumbrosome apparatus necessary for its administration, and that its effects pass away too quickly.

Nitrous Oxide Gas has become of such universal use amongst Dentists that few persons will undergo the extraction of a tooth without its aid and to supply such demand the gas is now manufactured by persons giving it the proper attention, and it is stored under pressure so that a small cylinder say 12" long and 3" or 4" in diameter contains sufficient gas to continue Anaesthesia for several hours were it desirable. The cumbersome rubber bags are now replaced by smaller ones which are easily attached to the resevoir and are also provided with an arrangement by which the exhalation is into the room instead of again into the bag.

Full Anaesthesia can be produced inside of a minute and the absence of all nausea vomiting or other ill effects provided the gas be pure render it a most admirable agent. The greatest objection to its use is the condition of Asphyxia induced; but Anaesthesia can be continued after once obtained even if considerable air is allowed to be inhaled, and there are on record numerous instances of its being administered for Capital operations; a few of which are Amputation of Breast, Leg, Thigh, Removal of Tumor from side, operations for Squint, extraction of Cataract and many others, the longest of which

occupied sixteen minutes.

The rapidity of its effects, the equal rapidity of their passing off upon removal of the gas, and the almost entire absence of nausea certainly recommend it to our further consideration, especially for minor operations.

The means of producing Local Anaesthesia have been so improved of late that they are now an important part of the Surgeon's and even Physician's outfit. Local Anaesthesia for many slight operations is very desirable, the patient retaining consciousness the while; but caution is to be observed lest the part be subjected to the danger of

mortification.

Absolute Ether is commonly used by means of some of the numerous atomizers which throw a fine spray upon the part. This by rapid evaporation produces such cold that Anaesthesia is quickly obtained.

A very volatile fluid called Rhigolene has been received with some favor, and is said to act more promptly than Ether. But the Rhigolene being so very volatile can not be well kept, is highly inflammable also, and is now seldom employed.

Such is the boon of Anaesthesia to suffering Humanity that well was it said "The greatest gift

of God to man through natural
science is Chloroform".

[illegible]

[illegible]

[illegible]

[illegible]s in regular succession, and, by [illegible] absence of the febrile movements between the paroxysms, The intermis-

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

its various forms. Especially is this [illegible]

[illegible]

of the whole [illegible]

portion of the Globe. There is [illegible]

[illegible]

[illegible] the Frigid Zone

Inaugural Dissertation

on

Typhoid Fever

submitted to the consideration of the

Provost and Faculty

of the

University of Maryland

for the Degree

of

Doctor of Medicine,

by

W. Leeke Dashiell, Jr.

Baltimore.

A. D. 1882.

The reluctance with which a student of Medicine submit his inaugural dissertation to the consideration of the Faculty, is equalled only by the diffidence & anxiety which he feels, when about to undergo a severe oral examination on the multifarious subject connected with his future profession.

There is one circumstance however which never fails to support him under these feelings, a knowledge of the fact that those, by whom his talent and acquirement are to be thus rigidly scrutinized, are characterized not only by matured skill and extensive

Scientific acquirements, but by urbanity and generosity, and a just appreciation of the allowances which are due to youth and jurisprudence. Relying, then, upon their indulgence, and actuated by a necessity from which there is no appeal, I have selected "Typhoid Fever" as the subject of my thesis. Neither on this, nor on any other subject, has my brief experience or reflection sufficed to afford any facts or observations which are new or original. My ambition will be satisfied and the laws of the University complied with, if the condensation which I am about to give of the opinions of others shall be found judicious and correct.

Typhoid Fever.

From its resemblance to Typhus Fever. An acute affection, known by an eruption upon the abdomen. Not thought to be contagious; although some consider it so. There is ulceration of Peyer's patches, diarrhoea, [illegible] spleen, inaptitude for exertion of the power of thought or motion and loss of strength.

Symptoms: Want of appetite, languor, loss of energy, epistaxis, nausea, tongue heavily coated &c. These premonitory symptoms continue generally from a week to ten days. An attack of intermittent fever precedes the fever [illegible] but the fever [illegible] the [illegible]

and throbbing of the temples. The [illegible] of the [illegible] in those constitutions which are the most [illegible]. In young persons [illegible] and [illegible], it will [illegible] to one hundred and twenty; while in stronger adults, it does not so early attain its maximum of frequency and perhaps does not exceed one hundred throughout the whole course of the disease. Should the pulse in any instance [illegible] one hundred [illegible] or one hundred and forty, the [illegible] is [illegible]; and the majority of such patients die. Tongue becomes [illegible] or dry; sometimes it is clear and smooth; more often furred; its origin and [illegible]

and during the fourth, intermittent.

[illegible]

be found to be unnaturally hard and resisting. There is evidence, frequently of a slight [illegible] in the [illegible] [illegible] the [illegible] [illegible] the first. [illegible] [illegible] [illegible], [illegible] the end of the first [illegible]. [illegible] [illegible] [illegible] [illegible]; [illegible] [illegible] little, [illegible] [illegible]; and the [illegible] [illegible] of [illegible] which [illegible] [illegible] to [illegible], [illegible] [illegible] by [illegible] [illegible] and [illegible] [illegible], and [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible].

Second Week:

The [illegible] frequent, weaker, and more compressible. The tongue grows [illegible] and [illegible] more [illegible], and of a [illegible] accumulates on the teeth and lips; and it is in this period that delirium is most [illegible] to [illegible]; and that [illegible] [illegible] are most often [illegible].

Patient generally loses his [illegible]: Price becomes feeble. Eye is generally dull. Countenance is perplexed, rather than wild. The taste, the smell, the sense of touch, are all impaired; even external inflammations may take place, especially about the lips and [illegible], and go on to [illegible], without [illegible]

is another [illegible] [illegible] [illegible]
at this period of the disease. The
character of the [illegible] [illegible] the
same. Hemorrhage from the [illegible]
is apt to [illegible] which is [illegible] [illegible],
in general to the [illegible] or [illegible]
of some of the mesenteric veins, by
the [illegible] process.

Third Week:

The phenomena belonging
to the third period of the fever are
considerably according as the disease
is about to terminate in death or
recovery. When the disorder
about to end favorably, the more
formidable of the [illegible] diminish
and abate. The patient [illegible]

to him; the air of stupor which
had hung over his countenance clears
away. [illegible]
in [illegible] a glow of health;
the temperature of his skin becomes
natural, the tongue moist and
clean, as to colour, and the appetite
for food returns. The bowels
[illegible] and the discharges
[illegible] in colour [illegible]
healthy. [illegible]
and [illegible] [illegible]
[illegible] [illegible]
[illegible] [illegible]
[

in the [illegible] [illegible] [illegible] [illegible]
[illegible] or [illegible]; and the
mischief [illegible] [illegible] [illegible]
is more constant and definite
than [illegible]. Inflammation
of [illegible] and [illegible] [illegible]
may be fatal in more ways
than one. It may [illegible] to
death by exhausting [illegible];
it may kill by [illegible] [illegible]
a large [illegible] [illegible] [illegible],
and so producing copious hemorrhage
and [illegible] [illegible]; it may,
and [illegible] [illegible], destroy the
patient, by perforation of the
[illegible]; the ulcer penetrate the
[illegible] [illegible] [illegible] [illegible]

and reaches the peritoneum: and sometimes that membrane is [illegible], and sometimes it does not. The consequence of the rupture or perforation, and the escape of the contents of the bowel, leads to intense and uncontrollable peritonitis.

Causes:

Typhoid [illegible] to a [illegible] and nature have thus far eluded investigation, but is associated with the decomposition of animal matter under certain conditions. The vehicles by which the disease gained reach the body

[illegible] air, water, [illegible] of food and [illegible] the [illegible].

It is most prevalent in Autumn. It is most [illegible] between the ages of from fifteen and thirty years. Men are more susceptible than women, [illegible] by preference the vigorous and able-bodied. It is not uncommon for it to occur, [illegible]

Treatment:

Mercury and Iodine are the specific remedies. Calomel in ten grain doses is [illegible] in the past week given on successive days when the temperature is high, Iodine given throughout

the [illegible] of the [illegible] beneficial. Nitrate of silver, sulphate of copper, arsenic and turpentine are good for the intestinal trouble. Quinine and digitalis to lower the temperature, cold sponging, are applied to the abdomen, quinine in the dose of from fifteen to twenty five grains. Failure of the heart requires stimulants, but otherwise stimulants should not be given, except those who are accustomed to its use, who requires a regulated amount daily. Morphia and belladonna are good to relieve

[illegible] and [illegible]
Turpentine is highly useful
if the tongue is dry and hard
and has a glazed appearance,
if there is great thirst, and
the abdomen is much distended
with gas. If the bowels act
too freely, nitrate of silver,
opium and bismuth will
act sufficiently. If intestinal
hemorrhage occur, ice to the
abdomen, ergotin injected under
the skin, turpentine with syrup-
semen and gum acacia. Alum,
tannin and iron may be
prescribed internally. Rest.
Good hygiene. [illegible] in moderate

quantities and often, Barley water, beef tea, chicken broth, egg-nog and brandy may be given.
The apartment should be well ventilated and be of a moderate temperature. Disinfectants should be used. Surrounding kept clean and pleasant looking also. Comfortable, and not many persons should be allowed to be in the apartment to disturb the patient. Diet must be liquid, and nutritive. Restlessness is one of the prominent features of the disease. This will very frequently be entirely quieted by sponging the surface of the body with

warm — cold water. If the temperature is high, cold water is better than warm; [illegible] some cases a Dwight [illegible] [illegible] required. In regard to the temperature, if it be so high that the temperature of the body is 105° F., the patient may be placed in a bath having a temperature of 95° F., then some of the warm water can be removed, and be replaced by cold water until the bath has been reduced to 80° F. If the patient is permitted to remain in such a bath twenty minutes, the temperature is usually reduced.

[illegible], [illegible] or even five [illegible]. [illegible]
removed from the bath and put
back into bed. When the diarrhoea
persists after the [illegible] stage of
the fever is passed, when the
convalescence is [illegible] and
evidently, the ulcers of Peyer's
patches [illegible]
[illegible]. It
has been recommended [illegible]
[illegible] drop-doses frequently [illegible]
for the intestinal trouble or
hemorrhage, [illegible] of
a teaspoonful, every six hours,
when there are [illegible]
[illegible]
[illegible]

checks the diarrhoea. Camphor is frequently excellent in allaying the nervous agitation. Chloral is often serviceable, in small doses, to induce sleep. Ergota is of great value in hemorrhage of Typhoid. The frequent use of a mouth wash, of equal parts of glycerine and rose water, is very pleasant to the patient, relieving the foul taste and dryness of the mouth. Should any threatenings of bronchial or pulmonary implication arise, they are met by dry cupping.

To the Faculty of Physics of the University of Maryland, Medical School. Thesis by

Gilbert McLeod.

N. C.

Feb. 1st 1882.

Auscultation.

Ever since the time of Auenbrugger - the inventor of percussion - and Laënnec - the originator of Auscultation - a thorough knowledge of the physical signs has become indispensible to the physician. When we have learned to appreciate the abnormal from the normal signs, and to assign them their true value in disease, we are then possessed of valuble diagnostic aids. The patient may either knowingly or ignorantly deceive the physician by the

history and symptoms which he gives of the case, but the physical signs mislead if they are rightly interpreted; they even reveal much that the patient himself may be ignorant of, especially in heart and lung diseases.

Physical exploration, or "Organography," as Piorry named it, is "the determination of the actual and relative position, material condition, and functional action of the organs contained within the body."

The modes of obtaining the physical signs are - Inspection; Mensuration; Palpation; Succussion; Spirometry; Percussion; Auscultation

Of these modes I purpose to treat only of Auscultation, as it is not only among the most important diagnostic means, but it is also the most difficult to learn. It is known that Hippocrates had some idea of auscultation, but it was left for the great Laënnec and other modern medical lights of the Eighteenth century, to bring it into practical use. In order that it may be made available in diseased conditions, we must first be thoroughly acquainted with the normal sounds heard in health. These sounds each one must learn for himself, for they cannot be taught except so far as to give a very indefi-

mile idea of them. "Auscultation," say Prof. Loomis, "is a kind of eavesdropping, for in it you bend your ear to catch the significance of sounds that come from hidden quarters, which no one can open."

Auscultation is divided into immediate, i.e. when the ear is applied directly to the surface; and mediate, i.e. when a tubular instrument is used to conduct the sounds from the surface to the ear. The former method is well adapted for the diagnosis of pulmonary disease; and is more convenient for all purposes, except when it is necessary to isolate or distinguish clearly one sound from another.

The following rules, which have been abreviated from the rules given by Prof. Loomis in his work on Physical Diagnosis, should be observed in auscultating a patient.

First. In immediate auscultation the chest should be covered by some thin, soft covering, as a smooth towel, which will not interfer with the transmission of sound, or itself produce any during the movements of respiration.

Second. The patient should be so placed that all the parts should be in a state of perfect repose.

The position of the examiner should be as unrestrained as possible, and

his attention concentrated on the sounds which reach his ear.

Third. The ear, or the stethoscope, should be applied firmly, but not forcibly, to the surface, and when the stethoscope is used, it is important that its rim fits equally and evenly on the part.

Fourth. The examination should include the entire chest, and the corresponding parts of the two sides of the chest should be compared together. The frequency of the examination must be governed by the case and the judgement of the doctor.

Fifth. The examination should be commenced, if possible, during

nary respiration. The patient should then be directed to take a full inspiration, then to cough, and then to breathe naturally."

As has been already said, we must first learn the normal sounds before we can appreciate the abnormal.
In normal, healthy respiration a soft breezy murmur is heard composed of two periods; one corresponding to the movements of inspiration, and the other, which is both fainter and shorter, to that of expiration.
The elements of the sounds are appreciated by the terms, Intensity, Pitch, Quality, Duration, and Rhythm.
Rhythm refers to the relative accen-

sion of the two periods in the respi-
ratory act. We also have a definite
proportionate variation among these
elements, in the different portions
of the respiratory tract, after which these
distinct varieties of respiratory sounds
are named. Thus, we have vesicular,
bronchial, tracheal, and laryngeal
respiration, each sound having its
own normal intensity, duration, &c.
These different elements of the respira-
tory sounds are due to a difference
in the volume and velocity of the
current of air on the one hand, and
on the other, to the nature of the ob-
structions which it meets in the en-
trance or exit through the pulmonary

passages." (Loomis).

The normal vesicular murmur, which is of a gentle breezy or rustling character, is the most important, and is heard best in the left infra-clavicular region. Its pitch should be low, but its intensity and duration varries in healthy persons. In the right infra-clavicular region the pitch of the inspiratory sound is higher than in the left, and less breezy in quality. Age also affects the character of normal vesicular respiration. Thus, in infancy, the intensity of both the inspiratory and expiratory sounds is increased, while the other elements remain the same.

In old age, on the other hand, the intensity is diminished, and the duration of inspiration is shortened, and the expiration prolonged. Sex also modifies the respiratory sounds. The intensity is generally greater in the female than in the male; especially in the upper part of the chest, while in males it is more intense in the lower part.

Laryngeal or tracheal respiration is heard over the larynx or trachea. It is tubular in quality and high pitched.

Bronchial respiration is only a little less tubular in quality than tracheal respiration, and is heard

only in certain diseased conditions of the lungs.

The abnormal sounds, which are heard in disease, are usually variations from the normal as to intensity, rhythm, and quality.

Variations of Intensity.

First. It may be exaggerated or increased, or, as it is some times called, puerile respiration, from its resemblance to the respiration of children. It may be due to deficient action in a part of a lung, or to one lung having to do the duty of its fellow, which has become diseased. So, for example, the consolidation of pneumonia, or solidification from the pressure of a fluid

rilic effusion, &c.

Second. It may be diminished or very feeble. This may be due to any cause which interfers either directly or indirectly with the expansion of the lungs, or diminishes the elasticity of its tissue. As pleurilic pain or effusion; rheumatism, paralysis, or disease of the larynx, trachea, or bronchial tubes, which offer some obstruction to the entrance of air into the lungs; also pulmonary emphysema, and incipient tubercular deposits.

Third. Respiration may be entirely absent or suppressed. This may be caused by a suspended action of the

lung from the presence of fluid or air in the pleural cavity, or by a complete obstruction of a bronchus or bronchi.

Variations in Rhythm.

First. We may have interrupted or "cog-wheel respiration," which is characterized by an interrupted or jerking inspiration. It is probably due to some gelatinous mucus adhering to the walls of the finer bronchial tubes which obstructs the free ingress and egress of the air. The best examples of this abnormal respiration are found in phthisis, asthma, or pleurodynia.

Second. We may have the interval between inspiration and expiration

prolonged instead of these two sounds closely succeeding each other. The inspiratory sound may be shortened, or the expiratory sound delayed in its commencement. This may be the result of pulmonary consolidation, as in tubercle; or of impairment of the elasticity of the pulmonary tissue, as in emphysema.

Third. We may have prolonged expiration in which the normal ratio between inspiration and expiration is inverted. It is due to a want of freedom in the egress of air from the lungs, as in vesicular emphysema, or tubercular deposits.

Variations in Quality.

first. We have bude respiration, or, as Prof. Flint has named it, "broncho-vesicular respiration," which includes the various degrees of respiration between the normal vesicular murmur and complete bronchial respiration. The natural soft rustle or breezy character of the vesicular murmur is lost, and the sound becomes higher pitched and tubular in character. It always indicates more or less consolidation of the lung tissue. It is heard in early pneumonia while the exudation is taking place, and before complete consolidation; also during the stage of gray hepatization, as the exudation is being absorbed and the vesicular

murmur is returning to the normal.

Second. We have bronchial respiration, which is "characterized by an entire absence of all vesicular quality." The respiratory sounds are high pitched, and are tubular in character. They are important diagnostic signs in many pulmonary affections, as pneumonia, phthisis pulmonalis, &c.

Third. We have cavernous respiration which is often difficult to distinguish from bronchial respiration, but during inspiration "a soft, blowing, low-pitched sound is heard, non-vesicular in character. For its production there must be a cavity of considerable size in the lung substance

communicating freely with a bronchial tube. The cavity must be empty and near the surface of the lung, and sufficiently placid to expand on inspiration and collapse on expiration. It is met with most frequently in the third stage of phthisis.

Fourth. We have amphoric respiration, which is of a metallic quality, and resembles the sound made by blowing into an empty bottle or gun-barrel. It may be heard with inspiration, but is heard especially with expiration. It is made by the vibration of air in a cavity of large size, empty, with dense firm walls, which do not collapse on expiration, and communicate

cates freely with a large bronchial tube. It is mainly of importance as a diagnostic sign in advanced phthisis, and pneumo-thorax.

Vesicular & cavernous sounds are never heard except in disease, either accompanying the normal respiratory sounds & entirely suppressing them. They may much according to their cause & origin.

These sounds are called rales or ronchi when they originate in the air passages, & in cavities communicating with them. A rale may be produced, on the one hand, by a diminution of the calibre of the air tubes, or by the vibration

of viscid matter collected in them; or the other, by air bubbling through a fluid which may be present in the bronchi and air vesicles, or in cavities. Hence, we may have either dry or moist rales.

Prof. Loomis gives the following very concise tabular division of them;

- Rales
  - Dry
    - Sonorous rales.
    - Sibilant rales.
  - Moist
    - Mucous rales (large & small).
    - Sub-crepitant rales.
    - Crepitant rales.
    - Gurgles (large and small).
    - Mucous click.

Dry Rales.

First. Sonorous rales or low pitched

and snoring in character, and may be heard during both inspiration and expiration in the larger bronchial tubes. It varies much as to intensity. It is caused by a diminution of the lumen of the bronchial tubes by tumefaction of the mucous tissue, or by spasmodic contraction, or by some pressure on them, as a tumor, an exudation or a deposit, or by a collection in them of viscid mucus. It is heard, at times, in almost every pulmonary disease, but is especially prominent in bronchitis, and spasmodic asthma. Sibilant rale is high pitched and whistling in character, and

may be heard in the smaller bronchial tubes during both inspiration and expiration. It also varies much as to intensity. Its causes are much the same as those which produce the crepitous rale, except it is the smaller bronchi that are affected.

Moist Rales:

First. The mucous rale is produced in the larger bronchi by the bursting of minute air bubbles in their passage through a liquid, which may be either mucous, serum, pus, or blood. It is heard during both inspiration and expiration. As the bronchial tubes are some small and some large, so we have "fine"

"fine" mucous rales, or "large" or "course" mucous rales. They are present whenever the bronchial tubes are filled with a fluid of any kind, as a secretion, hemorrhage, pus from an abscess, &c.

Second. The sub-crepitant rale is produced in the capillary bronchi, by the same cause which produce the mucous rales, i.e. by the bursting of air bubbles in passing through a fluid. It is heard in inspiration and expiration. It is of special diagnostic value in capillary bronchitis, and is called the "rale redux" in the resolving stage of pneumonia. When heard at the apex of a lung it

indicates commencing pulmonic

Third. The crepitant rale is a number of quick minute sharp sounds, crackling in character, and resembles the sound made by rubbing hairs between your fingers. It is heard only during inspiration, and does not vary in character. It is seated in the air cells and interlobular spaces. There are two theories as to its production; One that it is the result of air bubbling through fluid in the vesicles and interlobular spaces; the other, that at the end of each inspiration a viscid secretion glues together the walls of the air cells, the separation of which on inspiration gives

like to the crackling sound." This latter seems to be the more plausible explanation. This rales is almost always pathognomonic of pneumonia, but is sometimes heard in oedema of the lungs, and pulmonary congestion.

Gurgles are produced by the passage of air into a cavity partially filled with a fluid, and have a peculiar hollow metallic character. They are heard both in inspiration and expiration. They are termed "large" or "small" gurgles according to the size of the cavity in which they are produced.

Mucous click" is a simple, moist

clicking sound, not removed by coughing, and resembles an isolated sub-crepitant rale." What produces it is, as yet, sub-judice. It is important as a sign of incipient phthisis.

A Thesis On

Diphtheria By E. Darling

Diphtheria

Deffinition – Diphtheria is an acute disease, characterized by a local exudation and having for its sequela various paralyses.

Causes – It is a communicable and inocuable disease; it is also propagated by a specific poison, the form of which is not generally known, but supposed to exist as a minute organism. The simultaneous discovery by Klebs and Oertel of a minute organism of the Bacteria group in the exudations seems to confirm their observations. It prevails as an epidemic, under some circumstances endemic, and also occurs sporadically. it is closely allied to Scarlet Fever and it sometimes occurs during the course of measles small pox

Typhus and pueperal fevers. Its seems well established that the Materies morbi of these low forms of fever favor the development of the Diphtheria poison.
The epidemics are more apt to occur in the fall and spring or during a severe winter but have occurred at all seasons all conditions of bad Hygeine increase its virulence and favor its diffusion many nourses and Doctors have fallen victims to their devotion. When it breaks out in a family all the children are commonly affected and the adults too if they receive their breath generally have some degree of the disease but insolation will sometimes prevent its spread in a family and the better the rooms are ventilated the less virulent the poison will be

the greatest mortality is from the second to the fifth year of age. Boys seem more apt to get the disease than Girls, an acute catarrh of the fauces seems to invite contagion one attack does not prevent another, but considerable time does elaspe before subsequent attacks; The poison of Diphtheria exists in the exudations and secretions of the fauces and it is chiefly by these means that the disease is propagated. But those engaged in swabbing the throat are very apt to receive this matter as it is ejected in coughing or with the exhaled breath; Physcians have been poisoned by blowing through a tracheae canula, Articles of clothing will contain particles of matter on them for a long time. It adheres with considerable tenacity to the walls floor bedding

and articles of furniture, carpets and woolen goods of all kinds. Not all exposed to the poison have the disease, doubtless the poison floats in the atmosphere at a considerable distance from the original source, individual susceptibility and predisposition are important factors. When the predisposition does exist and an exposure is affected a certain interval elapses before there are any objective signs of the disease. The period of incubation is very variable, and the variations are due to the differences in the intensity of the poison and the systemic state of those poisoned. The more malignant the disease the more depraved the bodily condition, the more quickly will the symptoms of the disease come on after the reception of the disease germs. If the poison comes in contact

with an abraded surface, it secures immediate admission to the blood, and the stage of inculation may not exceed two days. Admitted to the system in the ordinary way the period of inculation may vary from three to ten days. By Vertell it is placed at from two to five days, but generally the largest number is three days.

Pathological Anatomy

The first change consists in hyperemia: a vivid injection of the mucous membrane of the fauscies; at the end of twenty four hours a faint grayish white pellicle appears on the surface of the soft palate the pillars of the fauscies the pendulum or the tonsills. The patches may be no larger than a pins

head and scarcely thick enough to prevent the mucous membrane from showing through them. In a few hours they quickly increase in number coalesce over spaces having the area of three or four lines and thicken so that they appear like bits of cord on the surface of the membrane. Now there appear constituting the exudation and piercing the mucous membrane, forcing apart the epithelial cells great numbers of round bodies highly refracting single cells with thick walls the micrococci masses of them united in bundles and others form distinct nodules projecting above and making their way into the deepest part of the mucous membrane. Bacteria can appear but not in great numbers in the deep layers of the mucous membrane and they are united by micrococci and these

bodies have also penetrated their interior thus is formed a mass composed of micrococci pus cells, and newly formed cellular elements which constitute a membranous patch that may be lifted off the surface. In the croupous form a quantity of fibrin is exuded when the local process has reached the development above described. In the septic form the masses of the false membrane undergo decomposition and bacteria form in great numbers filling up the sub-epithelial layer and sub mucous tissues. It is generally conceded that the Diphtheritic process as it occurs in the nose is more apt to produce septic infection. Here the micrococci accumulate in the greatest numbers and seem possesed of greater activity for the periosteum the cartilages even the are attacked. Gangrene is produced in

consequence of the rapid increase in cells, and crowding of the tissues by micrococci arresting the blood supply and stopping the nutritive processes, hence causing a necrobiosis which is extensive in proportion to the spread of the membrane formation. When this occurs false membrane mucosa and sub mucosa form together one semi liquid mass of a darkish color or a dark more firmly attached slough, from which the intense peculiar odor of Gangrene is spread. The Lymphatics of the neck, whose vessells take their origin in the tissues included in the Diphtheritic process are also involved; The micrococci penetrate to the vasa efferentia and are seen crowding these vessells in large numbers; The Lymphatic glands of the part are enlarged more

or less extensively. In cases of septic infection the muscular tissue of the Heart becomes soft and is easily torn The composition of the blood is much altered in cases of severe septicemia it is black fluid and stains the fingers a brownish color. Important changes occur in the kidneys and at a very early period of the disease they are swollen intensely hyperemic in the severe cases but little so in the mildest but in all cases changes occur in the malpighian tufts and in the tubules. The tufts are hemorrhagic contain micrococci colonies and are surrounded by hyperoid cells The brain is hyperemic and there are numerous capillary hemorrhages but the most interesting changes which serve to explain the secondary changes

are those occuring in the spinal nerve roots which are thickened while in the sheaths of the nerves hemorrhagic effusions occur and they are also filled with lymphoid cells and nuclei. Important changes occur in the muscles at any point of infection. Capillary hemorrhages occur in them and the striae disappear in the course of a fatty and granular degeneration. Those muscles lying immediately under the affected mucous membrane are apt to undergo these changes because invaded directly by the products of the Diphtheritic process.

Symptoms

There are three well marked forms of the disease the catarrhal the croupous the septic all who have had any considerable experience

with the disease will recognize the
adherence of nature to these forms
In the catarrhal form the initial symp-
toms are those of an ordinary catarrh
Heat irritation and pain are felt in the
throat and on attempt to swallow much
pain is experienced, chilliness followed by some
slight fever, headache backache and general
muscular pains are usualy present In the
mildest cases only some slight malaise
may result, In the more severe cases the
symptoms may be more pronounced as in
last headache great debility, nausea and
vomiting may be present and on examining
the fauces there will be visible hyperemia
and on the palate or tonsils minute groups
with patches very thin and lying on
The tongue is coated with a thick white

coating which extends well forward to the lip and is also posteriorly adherent to the organ. In a day or two and sometimes more rapidly these patches of false membrane extend over the tonsils the pillars, and the pharynx by a union of numerous centres of deposit; and not by a marginal growth only. The thickness of this membrane at this time is only a line or two, and it is distinctly outlined against the dark red mucous membrane about it. The color of the false membrane is greyish white but it varies from that shade to dark red even black the reddish hue is due to extravasation of blood. In the ordinary run but few cases attain to such an extent of false membrane there are a few patches which may coalesce and be

limited to one side, and they reach their maximum by the third day, when already the mucous membrane has become paler and the exudation is loosening at the margins. The fever which appeared at the onset has by this time disappeared. The general disturbance ceases with the fever except the debility which seems in marked contrast to the apparent severity of the disease. The mildest cases of catarrhal may be followed by paralysis and other sequelae. The croupous form may begin as the ordinary catarrhal variety and continue so till the formation of the false membrane without any indications of a departure from the usual course untill the fourth or fifth day when it takes on a new character by the sudden development of high fever increased tumefaction of

the glands and spreading of the false membrane into the Larynx causing death by suffocation as in true croup. The septic form during the course of the catarrhal form or the croupous especialy the latter, the products of decomposition enter the blood and a condition of septicemia will be produced announced by high fever followed by depression with temperature below normal the pulse slow irregular forty or fifty beats to the minute or becomeing rapid and thready with temperature 96° or 97° and death usualy results from failure of the Heart very suddenly

When recovery is to take place the pulse gains in volume force and frequency the temperature rises and the local condition improves but convalescence is necessarily slow

...ure Duration & Termination

The mortality of Diphtheria varies greatly in different epidemics and the results of sporadic cases are influenced by various causes. In some epidemics nearly all have died. A mortality of one in three, one in seven, and one in ten, has been observed in various English epidemics. So great is the variety in the severity of epidemics and of individual cases that no precise statement can be made. It is true that no case should be regarded lightly for during the course of the mildest case the most formidable symptoms may arise. The prognosis is in any case the graver the more virulent the case from which the person was obtained, the age and constitution of the person

affected for the mortality is much greater in young children both on account of Laryngeal implication and their feeble powers and in those of any age who possess poor constitutions and are strumous; Extension to the nasal passages is regarded as unfavorable and especially so in young subjects, both on account of the greater danger of septic infection and the interference with respiration. Vomiting and purging is unfavorable. If the temperature should rise after the fifth day there is some new complication as regards the form the catarrhal is most favorable next the croupous lastly the septic. The majority of the catarrhal end in recovery. While the majority of the croupous end in death (Overall)

Diagnosis.

The catarrhal variety of Diphtheria may be confounded with acute follicular ulceration of the tonsills and this mistake is doubtless frequently made the systemic condition may be much the same in the two diseases, but the local appearances are very different. In the tonsillar affection there is usually several ulcers at the orifices of as many follicles depressed below the surface and containing a grayish cheesy secretion. Pain is limited to the affected tonsill. Both tonsills may be affected when the same conditions obtain on the other side. In diphtheria the exudation is on the surface of the membrane and is not limited to the tonsills and is accompanied by swelling of the deep

circular Lymphatics the identity of croup and diphtheria is not yet decided That a membranous Laryngitis can exist with and quite irrespective of diphtheria is very probable there is a membranous bronchitis and enteritis. Judged from a standpoint croup differs from diphtheria in being a local affection, not contagious and dont cause systemic infection, and is not accompanied by albuminous urine. Overtell for these reasons adheres to the non identity of croup and diphtheria. Between Scarlettina sore throat and diphtheria close analogies exist but they may be differentiated by reference to these points in Scarlettina the symptoms are violent convulsions, delirium vomiting and intense fever inaugurating the disease

in diphtheria the symptoms are not so severe there is no convulsions no delirium only moderate fever. the Scarlettina rash appears at the begining of the second day or with the first exacerbation of the fever which desquamates.

Treatment

If the theory of a local infection followed by systemic poisoning be adopted, the early detection and destruction of the first patch of false membrane is of the highest importance. But the objection to the use of strong caustics seems insurmountable. Experience has shown that the morbid process can not be arrested by the most prompt and efficient applications, for it is impossible to penetrate to all parts where the germs may be deposited

any injury done to the healthy mucous membrane only invites the spread of the false, and the destruction of one layer does not prevent the formation of another and it is quite probable that systemic infection takes place during the period of incubation; anyhow those who employ the most powerfull applications do not present better results. Oertel has abandoned and condems all strong applications and relies on hot water vapor containing a little salt or Chl. Potassa. The nares should be carefully syringed out every three or four hours with a weak solution of chlorine, Chl. Potass, carbolic acid, salycilic acid and borax. The solutions must be weak and used freely and often by means of an atomizer a frequent mopping

with a solution of Lactic acid strong enough to taste sour does good afterward dust the part over with sulphur. That sulphur does good there is no doubt a portion of the sulphur becomes oxidized and sulphuric acid is produced. The domestic method of using lime vapor is very good, put a small peice of lime on a wide mouth bottle and pour water on it and allow the paitoint to inhale the steam; above all other topical applications according to some good authorities is a maximum solution of muriate of Quinia. In cases of Laryngeal affection an attempt should be made to dissolve the membrane by frequent applications, or effect its

displacement by emetics, those acting promptly and leaving little after depression being the most suitable as the subsulphate of mercury, sulphate of zinc and ipecac but not Tartar Emetic
The treatment of the systemic condition is as important as the local there is two things to be kept in view to limit the spread of the local disease and to prevent systemic infection for the first object the Bromide of Ammonium is very efficient, the Bromides are eliminated in a large part by mucous surfaces especialy of the mouth and throat and thus they act locally on the very source of the mischief. Acting similary and in a high degree efficient is iodine. In the normal state very decided

irritation is produced by the iodides.
To prevent systemic infection it is preferable to administer the Liquor Iodine Compositus one to five drops every four hours. Carbolic acid may be given with the Iodine

℞

Liq Iodine Comp ℥iv
Acid Carbol ℥ij
mft
Sig one fourth to two drops
in water every 4 hours

The most efficient of the agents to prevent systemic infection and at the same time act as food is alcohol. I think it is good practice to commence with moderate doses of whiskey at the onset of the disease from ℥sp to ℥j every 3 hours and increase it as the case progresses or circumstances demand. Whenever a case occurs in a family it should be at once insolated. All

the dejections expectorated matter in short everything used about the person should be disinfected the furniture and floors should be washed with chloride of zinc solution and walls white washed. The paralytic affections require iron quinia and the phosphates a generous diet and change of air if they dont improve under this special stimulants of the nervous system must be used as Strychnia galvanism. The question of Treacheotomy in Laryngeal affection is still sub judice the mortality is so great that it is only done as a dernier ressort In France it is done earlier with better results

To The Faculty of the University of Maryland

Very Respt

Edwin G. Darling

Thesis — Auscultation & Percussion

Respectfully submitted to the
Faculty of the University of
Maryland, School of Medicine.

Norwood N. Vance
S. C.

March, 1882

Auscultation & Percussion.

Of all improvements in the domain of Medicine, within, comparatively, recent years, there are, probably, none of more interest to the general practitioner, than the advances made in the sphere of Auscultation and Percussion. Of such value are they considered, nowadays, that it is, and rightly, the generally accepted opinion that a man, who goes out into the world to practise, without some knowledge of them, lacks one of the most important elements which

so to make up the thoroughly equipped member of our profession. We cannot, of course, within the short time spent in college, become experts, yet we can acquire sufficient knowledge with which to begin our warfare, and, by close attention, for a few years, we can justly hope to become experts, as many before us have done. It is true there are many branches of medicine in which they are of little practical value; but, no matter what a man intends to make a specialty of, in after life, it is incumbent upon all, alike, to become as proficient as possible in these

ants. What a narrow-minded set of men we will be, if our acquirements are to be valued in dollars and cents! We should endeavor to make ourselves ornaments to the Medical profession, and not merely squeeze through the examinations, and get our "sheep-skins" "by the skin of our teeth".

Auscultation and Percussion, from the nature of things, are, for the most part, made use of in examinations of the chest, and the remarks, which we shall make, will have reference, solely, to their value in that direction.

The value attached to a knowledge

of them is made quite evident by the fact that our Professors Donaldson, Chew, and Howard have given so much attention to them in order to become proficient. Prof. Donaldson, in one of his clinical lectures on "Diseases of the Chest," said, "There is no department of Medicine so clear as ours. It is true we are often compelled to make most unfavorable prognoses; but we can't help it; it's as plain as the nose on your face."

What unbounded satisfaction he must experience, who feels that he is able to detect the most minute lesion! And how perplexed

and annoyed he must be, who is groping along in the dark, unable to do anything for his patient, and ignorant of the existing trouble! It would be infinitely more satisfactory to recognize the lesion, even though unable to afford a cure, which must frequently be the case. I would not seem to attach undue importance to physical examinations to the neglect of subjective symptoms. It is of the utmost importance that the two be combined. It is true we may sometimes feel quite satisfied that our patient is phthisical from subjective symptoms, yet we

would venture a diagnosis, with the utmost reluctance, without a physical examination. Again the history may clearly be one of phthisis, but we cant know the exact state of the lungs without a thorough examination.

Physical signs are not to be acquired from books, but from the examination, and study, at the bedside, of many patients.

The same physical symptoms may exist in various diseases, so also the same physical signs may exist in various diseases. It is out of the question, therefore, to consider one physical sign as pathogno-

monic of a disease - a single point cannot possibly be diagnostic. It is only by the coexistence of several signs, that we are justified in making a diagnosis.
For the sake of convenience, in physical examinations, the surface of the chest is mapped into regions by authors. In order to be different from others, every man makes a new division - one, he claims, better than any made use of before. Da Costa makes a very simple division, viz, Anterior, Posterior, & Lateral surfaces; and these are again subdivided into upper and lower portions. It must be

borne in mind that all these ac-
tions are double. With this division
by means of the most prominent
points of the chest, it is made
easy to designate the exact local-
ity of any lesion. We shall now
go into the more intimate consid
eration of Auscultation and Per-
cussion.

Auscultation - derived from the
Latin auscultatio, which means the
art of listening.

Laennec introduced auscultation,
and we should feel entranced
gratitude to his genius, for, now, com-
parative tyros are able, with certain
ty, to diagnose diseases, which

ent a great many years ago, defied the skill of the most learned men of the time. There are two modes of Auscultation, viz., the Medial and Immediate.

Medial - Laennec made use of this mode, which is by means of a medium - an instrument called the stethoscope. Stethoscopes are made after many patterns, and of almost every material. It matters little as to the character of the instrument, provided you have the skill to use it, which can only be gained by considerable practice. Dr. Cammann, of N. Y., has invented a very ingenious instrument, which is esteemed high-

by, by many; it consists of two tubes the extremities of which are placed in the ears, and, is, therefore called the Binaural Stethoscope. One thing in-ducement to its use, is the fact that the ear-pieces shut off all outside noises, and intensify sounds in the ear, which are alone desired. There is, also, an instrument, introduced by Alison, called the "diffferential stethoscope", by means of which the ear receives, simultaneously, the sound from a different region. One of the ordinary wooden instruments is the most convenient to carry with you, and is, to all intents and purposes, equal to any I think, provided

we take the trouble to become proficient in its use.

Immediate Auscultation - This is the direct application of the ear to the chest. This mode was introduced a few Laennec's time, and is best suited to pulmonary examinations; but, in examining the heart, when it is of great importance to isolate sounds, the Medial is preferable. While both modes have their exclusive advocates, it cannot be denied that each has its own advantages; and it is extremely desirable that one be acquainted with both methods.

Da Costa gives some admirable rules to be observed in auscultation; one cannot insert them, for lack of

space, but recommend their attentive consideration.

Pulmonary Auscultation -

In the examination of a healthy chest during the respiratory act, we hear a soft, breezy murmur, composed of two portions, denoted respectively inspiratory and expiratory sounds: of these, the latter is faint & short, indeed, it is said to be absent in four out of five persons in health, whose attention is not directed to their respiration. The elements of these sounds are expressed by the terms, Intensity, Pitch, Quality, Duration and Rhythm. As a matter of course,

we find present, normally, in the various portions of the chest, proportionate variations in these elements. Thus we speak of Bronchial, Tracheal, Laryngeal, etc. Respiration, each of these has its own proper intensity, quality, etc. The variations in these integral elements are due to the volume and velocity of the current of air present, and to the amount of obstruction which is offered to its entrance and exit. Yet every complete respiration yields its inspiratory and expiratory murmur. In order to detect abnormalities in these elements, we must be thoroughly familiar with the normal sounds, and, to do this, we must

give our whole attention to our examination, and train our ears to detect the minutest flaw, which would, possibly, seem, to one ignorant of its value, unworthy of notice; but the importance of such keen perception cannot be overestimated, for we may be able, thus, to detect in its incipiency, and, probably, check what, if undetected for a time, might prove most serious to our patient. Of all the normal respiratory sounds, that which stands first in importance is the vesicular. This is heard over various portions of the chest, but with most distinctness in the left infra-clavicular region. Sex, age, etc. influence the respira-

tory sounds. Abnormal sounds, in general, consist in changes from the normal, as regards the three elements of intensity, rhythm, and quality. Every lesion of the lung, gives forth unmistakable evidence of its existence, and the skilled auscultator finds little trouble in detecting it; having done so, and knowing what conditions emit the respective sounds, has no trouble in making a truthful diagnosis.

Cardiac Auscultation - in this, as in the preceding, a previous knowledge of the normal heart-sounds is absolutely requisite. In the first place,

We must know that there are two sounds. The first is dull and heavy, corresponding with systole. The second is short and flapping, and occurs with diastole. Both are heard, with varying distinctness, over the whole cardiac area. Then we must know the mechanism of these sounds and the points at which they can be listened to, with greatest advantage. Knowing then the proper sounds, and when they can be heard best, it is, comparatively, a simple matter to detect a lesion, and to give its exact position. We should not, under any circumstances, be satisfied with a superficial examination of the heart.

If it is worth making at all, let no doubt well. In this, as in every thing else, we should be extremely careful before venturing a diagnosis. Cardiac auscultation is much simpler than Pulmonary, on account of the few sounds with which we have to deal. By auscultation we are not only enabled to detect endocardial sounds but, also, friction sounds, etc, resulting from pericardial inflammation. We often find stethoscopes of wonderful assistance.

And, finally, in making an auscultatory examination of the chest, we should consider, 1st. the character of the respiratory murmur; 2nd, ab-

normal respiratory sounds; 3rd, Heart sounds; 4th, abnormal cardiac sounds.

Percussion - (per, cutio) means the "striking upon". We find Percussion mentioned by Hippocrates, its use, as a means of diagnosis, is, therefore, not of recent date. In this, as in Auscultation, we have two modes - Mediate and Immediate. The Immediate was the mode practised, originally, that is, striking upon the chest, itself, with the tips of the fingers, or knuckles; its use was, therefore, as then limited. That bodies of different composition emit unlike sounds, in short, that solid and hollow bodies emit different sounds, is a fact well-

known, from time immemorial.
Avenbrugger, a Viennese physician, of the
last century, was the discoverer of the
applicability, of this well known fact,
to the study of diseases of the human
frame. He, too, as his predecessors, prac-
ticed Immediate Percussion. While
this was, to a certain extent, serviceable,
it is entirely inferior to the method in-
troduced, within our own time, by
M. Piorry, viz., Mediate Percussion
The percussion hammer and the
pleximeter are made use of [illegible].
For thoracic percussion, the most satis-
factory mode is to use one or more fin-
gers of the left hand, as pleximeter,
and tap with one or two fingers of the

other hand. The palmar surface of the fingers should be firmly pressed against the walls of the chest. The movements in tapping should proceed from the wrist, and only the wrist; they should be slow, regular, and not of great force. Some, even now, contend that Percussion is useless; while, in fact, it is only second to Auscultation, as a method of physical exploration. It would, indeed, be worthless if Auscultation were not practised; but who is simple enough to make use of one without the other? They are twin-sisters and inseparable! The beginner, who imagines Percussion a very simple thing, will soon discover

his mistake, and become convinced that it requires considerable manual skill. The correctness of its indications depends, in great measure, upon the mode in which it is performed. A correct appreciation of the elements of sound is necessary, to a true valuation of Percussion, and a positive understanding of its significance. Numbers of terms are employed, by various authors, to designate the elements, such as, clearness, dulness, etc.

Pulmonary Percussion, -

"The sounds, elicited by striking a healthy chest, differ in accordance with the part percussed." It must be borne in mind, that there exists, normally, in the chest of

the healthy person, a difference on percussion in the two sides, owing to causes well known to all. The sounds in inspiration and expiration also differ; it would, therefore, be wholly improper to compare percussion, during inspiration on the one side, with that of expiration, on the other. The position of the patient is of the utmost importance in percussion, & should be carefully attended to, the object being to make the intervening tissues as firm and thin as possible. Percuss on the naked skin.

Cardiac Percussion – by it we aim to determine the exact outline of the heart itself, and it affords the readiest means of doing so. It is not easy,

but to do it well, requires both care and
practice. On percussing over the heart,
we get a dull sound, accompanied by re-
sistance, which tells us that we are
striking over a solid body. There are two
degrees of cardiac dulness, a superficial
which is gotten by percussion over the
portion of the heart, uncovered by lung
tissue, and a deep-seated, gotten from
that portion covered by lung tissue.
It is important that we bear in mind
the areas of these. Both areas may be
increased or diminished by disease:
we need not hope to discover any change
unless acquainted with the natural
areas.

Auscultatory Percussion - this is a-

method introduced by Cammann and Clark, in 1840, and which consists in listening, with a stethoscope applied to the parietes, to the sounds elicited by percussion. By resorting to this, a more distinct idea of the sound can be obtained, than by the ordinary method of practising percussion. By means of it the boundaries of the different organs, heart, lungs, etc., may be, accurately determined, and, particularly, accurate results are yielded, when carried out with the double stethoscope. A sufficient prominence has not been given to this mode of examination in the practice of the day. The authors claimed for it a remarkable accuracy,

which was often verified. The explanations of its not having come into more common use, since the demonstration of its value, is that two persons were necessary in its practice - one to practice auscultation, and an assistant to make pressure. I believe that by this method the busy practitioner will be able by the exercise of some caution and patience to mark the heart, and liver, and most probably the spleen and kidneys, with a very great degree of accuracy." The above are the words of Dr. McBride, of N.G., who has invented a stethoscope for this special purpose.

Norwood N. Vance

Greenville

S. C.

1882

Digestion & Indigestion

By

Jean De Burkarte

of

Pennsylvania.

Digestion.

The reduction of food to a fluid state, for the support and nourishment of the body, which includes prehension, or the conveying the food to the mouth, mastication and insalivation.

Mastication is effected in the cavity of the mouth by means of the teeth, which are formed for this purpose; those in front are sharp and thin, to receive and cut the food; those behind are broad and strong, and indented, with small cavities, to fit them for grinding, and are covered

with a white enamel, harder than bone. The Superior maxillary is immovable, or movable only by the head; but the inferior maxillary with its teeth is capable of moving upwards, downwards, backwards, forwards, and laterally, by means of the muscles of mastication. By the different movements of the lower jaw against the upper, aided by the tongue and lips, which are called into Requisition, the latter to keep the food in mouth, while the tongue returns it to the renewed action of the grinders, the motion of the cheeks at the same time, with the Stimulus

of food in the mouth, acting on the three Salivary glands, presses out from their various reservoirs, a moistening fluid, which is necessary to prepare the food for digestion, as well as to soften and facilitate its passage into the Stomach.

Deglutition, or the act of swallowing, by which the food is transfered from the mouth to the Stomach.

Between the mouth and the pharynx is the soft palate, a movable muscular partition, which Separates the two cavities during mastication.

As Soon, however, as the act of mastication is accomplished, and when the bolus is pressed backwards by the

tongue, the soft palate is drawn upwards and backwards, so as to permit the passage of food into the pharynx. The food having arrived at the oesophagus or gullet it is met by a valve called the epiglottis, placed there to guard the entrance to the lungs, which closes on its approach, but opens again the moment the food has passed in by the action of the constrictor muscles, which surround the pharynx. When the food is pressed backwards by the tongue into the pharynx all voluntary action ceases. It is then impossible to recall the pellet, and by the vermicular action of the oesophagus, it is carried through

the cardiac orifice into the Stomach, which completes the act of deglutition.

The next process is the chymification or Stomachal digestion.

The Stomach is the principal organ of digestion, and where the food mets the gastric Juice, which is Secreted from the follicles extensively diffused, and make up the greater part of the thickness of the mucous membrane. The gastric juice acting on the Semi-fluid mass quickly dissolves out the digestable part, and entering into union with it, changing it into a new Substance called chyme. The heat at which digestion takes place, is from about 96° to

100°. After the food becomes fully digested, it is then by the contractions of the Stomach passed through the pyloric orifice into the duodenum. As we follow the chyme, from the Stomach, into the small intestine, we find there is still a portion held in suspension, which requires further elaboration, the chylification or the intestinal digestion.

It is in the duodenum where we have it subjected to the action of the bile supplied by the ductus communis choledochus and the pancreatic fluid, from the pancreatic duct (canal of wirsung), and the secretions from the glandulae in the walls of the intestines,

as those of Brunner, whereby its chemical properties are changed by the action of the pancreatic fluid, with bily or fatty substance, when a permanent emulsion is formed and a chemical change taken place, in which we find the chyme changed into chyle. As it passes from the duodenum, it next enters the Jejunum and ileum, where its nutrimental properties are all absorbed by the lacteals and conveyed to a common receptacle, and mounts through the thoracic duct. As the chyle is the principal nourishment of the whole System, its passage is guarded with peculiar care.

The thoracic duct, which conveys the chyle into the blood, passes upwards along the vertebral column, from the receptaculum chyli, which is situated on front of the body of the Second lumber vertebra to the root of the neck. It passes behind the arch of the aorta, across the oesophagus to the left Side opposite the upper border of the Seventh cervical vertebra, where it curves downwards and discharges its precious treasure into the Subclavian vein, opened for its reception, close to its origin with the internal Jugular, its orifice being protected by two valves, which prevent the venous blood from entering

the duct. In its present state it is unqualified to perform the work for which it is designed. Therefore by the chyle entering into the general circulation with the venous blood with, which it is mixed, passing through the lungs is converted into pure arterial blood, fit for the highest office of the body.

The blood being thus improved, it is conveyed by the pulmonary veins to the left auricle and ventricle of the heart, from whence it is distributed by the aorta throughout the whole body, imparting sense to every nerve and motion to every limb, dispersing its nutrimental

stores to every member, even to the
minutest part, where uniting
with the capillaries, it enters the
venous circulation, and is carried
back to the heart.
Thus the human river with its
rich fluid, leaves the several
regions of the body, transfusing
vigor and propagating health and
strength to every part.
The feculent matter being
carried on by the vermicular
action of the entestines, until it
is discharged at the anus.

Indigestion or Dyspepsia is negative, and contrary to digestion; an incapability of the digestive organs to perform the work to them assigned. Dyspepsia is imperfect or difficult digestion a derangement of the functions by which the food is converted into chyle, applied to various forms of diseases of the Stomach and small intestines in which the natural process of digestion and assimilating the food is deranged. It is met with in two forms, acute and chronic. In health we have perfect harmony between the

cerebro-spinal and ganglionic System. Let this be broken, inaction, and disease in some form is the result. Hence the importance of keeping the different functions of the organism in proper working order.

Causes,- The causes of dyspepsia are numerous. The acute may arise from anaemia or plethora, or the stomach sympathizing with some other organ, and again it may arise from deranged nervous action. The usual causes are from excess in eating or taking indigestable food; great bodily fatigue, mental exhaustion, broken rest,

the excessive use of alcoholic stimulents; one of the principal causes of the disease is, the hurried manner of eating their food imperfectly masticated, and insufficiently insalivated. Another cause of indigestion is over eating, and not allowing sufficient time and rest for the stomach to digest one portion of food before another is taken.

Symptoms.- The symptoms vary in different patients, according to the nature and severity of the disease, and the peculiar susceptibility of the individual. One may suffer intensely, while another may be more diseased and yet

suffer much less. In some cases, there is anorexia, or loss of appetite, occasionally nausea and vomiting, or regurgitation of food, constipation, and sometimes diarrhea, fetid breath, furred tongue, palpitation of the heart, nervous headache, and hypochondrias. And again in other cases we find a ravenous appetite, unpleasant sensation after eating, pain in the Stomach and duodenum, torpid action of the liver, the eyes are tinged with bile, the urine scanty, occasionally perspiration, alternated with chilliness, followed by heat, bitter eructation of gas-

eous matter, incapacity of thought, with despondency; complexion sallow, dark or yellowish, exhibiting a general derangement of all the functions of the body. If the disease becomes chronic and associated with gastritis, there is great tenderness over the epigastrium, and the food taken into the Stomach, even in small quantities, will cause pain and depression of the mind, irritability of temper, oppressed breathing, noises in the head and ears with headache, the brain more or less affected through the reflex action transmitted by the nerves of the stomach.

The disease, however, assumes a great variety of forms, and each case is marked by its own peculiar Symptoms.

Pathology.- The stomach in dyspepsia is in a state of inactivity being less of the Solvent Secreted, and less muscular movement to favor Solution. The food remains in the stomach longer undissolved, and sometimes is not dissolved at all. The gastric Secretion is altered in quality, being acrid and irritating producing vascular irritation of the muscular coat. Hence the heartburn, gastralgia and frequently the vomiting and headache.

imperfect Secretions of the gastric and pancreatic fluid impares the whole process of digestion. Atony of the muscular coat, also impares the process of digistion. Every organ of the body depends on the Stomach for its healthy condition. It is easy to understand how derangement of the nutritive process may originate, and how that interruption will affect the whole System. If the Stomach is deranged so as to prevent it from performing its office, all the other organs, which depend on it will be influenced to a greater or less degree.

Diagnosis. The acute disorders of

the Stomach are easily recognized by the characteristic Symptoms, and is distinguished from neuralgia, by the inflammatory action. Neuralgia includes all painful affections, without inflammation, and is more comon in early life, and in the female, usually from some uterine or other nervous disturbance, which affects the functions of digestion but little, and is felt most when the Stomach is empty. Neuralgic or rheumatic pains of the abdominal muscles are also apt to mislead us.

Pain after eating is generally due to flatulence, and if it continues after eating, and is only relieved by

emesis, is to be regarded as an organic disease.

The atonic is essentially a chronic dyspepsia, and is distinguished from chronic catarrh by the small degree of gastric uneasiness, and the absence of epigastric tenderness, loss of appetite, absence of thirst and pyrexia. The tongue is pale, broad and flabby.

In dyspepsia of drunkards the vomiting of mucous is an important Symptom, and generally occurs in the morning.

Severe pain and uneasiness are often complained of in hypochondriasis. A paroxysmal pain in the right

hypochondrium is generally from the passage of gallstones.

Prognosis. The acute and atonic are most generally favorable under proper and timely treatment. But when neglected and becomes complicated with chronic gastritis, chronic ulcer or cancer of the stomach or duodenum the chances are not so favorable.

Treatment.- The treatment of indigestion is certainly more dietitic than medicinal, yet at the same time we must meet the indications as they present themselves, with proper remedies.

"The diet should be well regulated and strictly enforced, and all food prepared in such a manner as to admit of easy digestion and assimilation; otherwise it will come short of accomplishing the object for which it is designed. The stomach should have time to perform one task before another is imposed upon it, and five or six hours should intervene between meals. All food difficult of digestion should be strictly avoided. The diet should be light, and food taken at regular intervals, well masticated, and should

consist of the following substances;
light and stale, graham or
wheat bread, fresh beef, tender
mutton and wild game, all of
which should be properly cooked
either by boiling, roasting or
broiling. Oysters, roasted or raw,
fresh fish, and eggs boiled soft,
pure milk and fruit of all
kinds. Care must be taken not
to overload the stomach or eat
just before retiring at night.
Daily shower or sponge bath,
moderate exercise in the open
air, cheerful company and
amusements, etc. Retire and
rise early, allowing from six

to eight hours for sleep in a well ventilated room. The success of treatment depends very much upon strict dietetics, yet proper medicines will assist materially in the final cure.

If the bowels are constipated stimulate the liver to a healthy action and keep the bowels well regulated with saline cathartics, and steadily stimulate the stomach with some of the following remedies as the case may demand. If there is deficiency of gastric secretions, pepsin will be required. If it is from inertia of the stomach strychnine

will be the remedy. If the disease is associated with or caused by nervous debility, we may select from among the following: Elix cinchona, nux vomica, columbo, phosphorus and glycerine, quinine, nitro-muriatic acid, and some of the preparations of iron, etc etc. The digestion should be improved by such means that will tend to invigorate the System generally, and by such remedies as will restore a healthy action of the stomach, as all the organs of the body depend on it for their healthy Condition —

Thesis of
R. H. Wolfe
To the
Dean & Faculty of the
University of Maryland
School of Medicine

Stricture of the Male Urethra.

By, R. H. Welfley

In view of the importance and the frequency of the occurrence of Stricture of the Male Urethra, it is a subject that claims the highest consideration from those who purpose devoting their life to the Healing Art. A knowledge of these claims and the interest investing the subject, directed me in a choice of a subject for this Thesis. In presenting this subject I shall briefly relate the anatomy and physiology of the part, define the meaning of Stricture, consider the different forms, classes and seat of the affection, and devote a large portion of what I have to say, to the treatment of the disease

The urethra is the membranous canal extending from the neck of the bladder to the meatus urinarius.

It is composed of two layers, a mucous and elastic coat. The mucous coat is thin and smooth and is continuous internally with the mucous membrane of the bladder, externally with the investing membrane of the penis. The elastic fibres vary in thickness in the different parts of the course of the urethra. It is thick in the prostatic, forms a firm investment for the membranous portion of the canal, and is thin in the spongy portion. The urethra is from eight to nine inches in length, and may be divided into a prostatic

membranous and spongy portion

The Prostatic portion a little more than an inch in length, is situated in the prostate gland. The Membranous portion is the narrowest part of the canal and is less than an inch in length. It is continuous posteriorly with the prostatic urethra, anteriorly with the spongy portion which forms the rest of the rest of the canal. A fair average well formed adult urethra measures about three eights of an inch in diameter. But the urethra is a distinct individuality in each case irrespective of standards. Normally it has two points of sensible, and two of decided dilatation; the former at the meatus urinarius and triangular ligament, the latter the fossa navicularis and the bulbous urethra.

The curve of the urethra is that of a circle

three and one quarter inches in diameter, and the proper length of arc of such a circle to represent the sub-pubic curve is that subtended by a chord two and three quarter inches long. These curves have an important bearing in all explorations, Catheritism and the use of instruments in the normal canal.

The function of the urethra is that of the common duct for the escape of urine and semen, and is always a shut canal throughout its whole course except when distended by some foreign substance.

Structure of the Male Urethra is an unnatural narrowness of any portion of its canal. If this diminution of the urethral caliber depend upon muscular spasm; it is called Spasmodic Structure

if upon congestion or temporary inflammation, Inflammatory; and if due to the products of inflammation, Organic or Permanent.

All strictures may be ranged under three heads: linear, annular, and tortuous. If the obstruction is extremely narrow or thread-like, it is called linear; if a little wider, it is designated ribbon-like or annular; while the tortuous is applied to all other varieties and may be an inch or more long, or even involve the whole pendulous urethra.

The extent of contraction in stricture varies from an almost imperceptible narrowing of the canal to nearly absolute exclusion; and those admitting an instrument less than 10 of English or 15 of the Metric, are designated as, Strictures of

small Caliber; and all those that accompaniment are included in the class of Strictures of Large Caliber, Stricture is usually solitary, though occasionally they are multiple, as many as from three to seven have been found in a single urethra The seat of Stricture varies very considerably, some authorities claim that the great majority are found in the region of the bulbo-membranous junction, but more recent observers claim that they occur in greatest frequency where the inflammation begins the earliest, which is usually the meatus, and diminishes in frequency as you descend the deeper portions of the canal. If the seat of the prostatic portion of the urethra occurs at all it is due rather to a change in the gland tissue than to any derangement connected with

lining of the canal itself.

The lesion of stricture is such as results from acute or chronic inflammation. The morbid change in slight organic stricture may be a mere thickening of the mucous membrane, with density and inelasticity. In a more aggravated form and of longer duration the structures beneath the mucous membrane will also become involved in the morbid process, and often the meshes of the spongy tissue will be found glued together, obliterated and a mass of dense, fibrous cellous material encircling the canal and holding it permanently contracted.

Etiology of Stricture

I Spasmodic stricture is due to irregular nervous action connected with congestion

of the spinal cord, or due to a spasm of the muscles, caused by a reflex action from irritation of the urethra. This condition may be brought on by an individual after having been at a ball, frolic, or sleighing party and indulged too freely in stimulating articles of food and drink, finds on his return home when he desires to urinate that it is impossible for him to empty his bladder. The same condition is also found in certain fevers, and in accidents requiring the supine position, as in fracture of the leg &c.

II An Inflammatory Stricture is the result of irritation or inflammation in the urethra itself, which by effusion, diminishes the caliber of the

III Organic or Permanent Stricture is always caused by inflammation or a traumatism, simple urethritis often gives rise to stricture, but gonorrhoea or specific urethritis is far oftener followed by stricture than in the simple form. And the longer the duration of a given gonorrhoea, prolonging itself into the gleety stage, the more certain is it to be followed by stricture, stimulating injections employed too early are capable of producing the affection. It is also occasionally produced by [illegible] of the urethra.

Traumatic stricture is formed most often low down in the canal involving the membranous urethra and is generally caused by [illegible]

fall [illegible] upon the perineum,
Falls from a height the patient
lighting astraddle a beam, chair,
bot, the limb of a tree, the tongue of
a wagon, etc are all accidental causes
of injury to the perineum capable
of producing stricture. The nozzle
of a syringe employed in the treatment
of urethritis is often a cause of stricture
of the first half inch from the meatus.
Symptoms and Results of Stricture. &c.
The Organic Permanent stricture is the
most serious of these varieties, the
symptoms may be best studied under
this head. In connection with the
symptoms, the results of stricture will
also be considered. The first symptom
that attracts the attention of a person
laboring under a stricture [illegible]

tion of the stream of urine which is usually spiral, forked or dribbling: frequently slow and difficult micturition, a slight muco-purulent discharge may now be seen occasionally upon the linen, uneasiness about the loins, perineum and anus; pains in coition; nocturnal emissions. The desire for urination becomes more frequent, while the evacuation of the bladder is not complete, creating more or less disposition to strain. A stricture may have existed for years before the patient may have become aware of a single symptom of sufficient importance to attract his attention during the progress of the disease there are still other symptoms which

such as swelling of the testicle, abscess, hemorrhoids, and very often hernia and retention or incontinence of the urine. Retention may be the only prominent symptom connected with a case of stricture, which leads the patient to suspect [illegible], Cystitis of the neck of the bladder and often of the entire organ; hæmaturia may also be a prominent symptom, as the stricture tightens, obscure pains of a neuralgic sort in the thighs, legs or sole of the foot are often complained of. The complications and results of stricture are Extravasation, Rupture of the Bladder Epididymitis, Fistula [illegible], Abscess &c. each in turn gives rise to symptoms peculiar to the affection, some of which

are at first obscure and require the closest observation to discern their nature and tendency.

The Constitutional Disturbance in Stricture is variable and depends upon the extent duration, and complication of the case.

Diagnosis. The most prominent symptoms of stricture are irregularities in the stream of urine, a slight purulent discharge with the urine, pain, neuralgia of the urethra, retention of urine, overflow, dribbling, imperfect erection and irritability of the bladder. If the stricture is of long duration and tightens, cystitis, with other functional and structural changes of the bladder, ureters, kidneys, rectum, &c, Infiltration, perineal abscess, fistula, rupture of the bladder,

are characteristic result. But the surgeon might readily be deceived were he to judge simply, from the rational symptoms of the complaint, as some of the most important symptoms are found in connection with other diseases. He can however by the introduction of an instrument and passing it down the urethra, establish a correct diagnosis without a doubt. And this means is often the only reliable method of arriving at a correct conclusion.

Prognosis. The prognosis of organic stricture if taken before it has become hard or firm, or while it is still recent, and before it gives rise to any serious lesion of the urinary apparatus, is in general favorable

dangerous or difficult to cure, when it has existed for years, is obstinate deep seated, and has greatly impaired, the general health, the prognosis should be guarded, As a general thing the nearer the structure approaches the meatus the less the danger; on the contrary the deeper and more protracted the greater the danger,

Treatment, I Spasmodic [illegible] requires rest and recumbency, and warmth in the form of baths or otherwise, warm tea and some anodyne, such as opium by the rectum, or by the mouth, or by sub-cutaneous injection, Belladonna or its alkaloid atropia, is useful especially when locally applied, active Apperients. The inhilation of Chloroform will itself often relax muscular contraction; and if not [illegible]

without difficulty

us to pass a catheter through an urethra which just before had proved impermeable

II Inflammatory stricture is to be relieved, by combating the inflammation that produces it. The same local means as just detailed, in the spasmodic variety, in addition to local depletion and counter-irritation, and, greater care in the introduction of instruments will accomplish the desired results

III Organic stricture. Various methods have been employed for effecting the permanent cure of stricture; of these the most important are internal urethrotomy, gradual dilitation, divulsion, continuous and forcible compression, cauterization and perineal section. But before resorting to any of these measures

it is of paramount importance to attend
to the general health and subdue local
inflammation. The urine should be
examined chemically and microscopically
to ascertain the condition of the bladder
and kidneys. Rest in the recumbent
position for a day or two previous to the
operation if the stricture be an old
an aggravated one, hot sitz baths
and the administration of minim doses
tincture of iron and tonic doses of quinia,
and the latter immediately before the
operation in five or ten grain doses
with the sixth or a quarter of a grain
of morphia. The relative merits of the
different methods for the treatment
of stricture which have been brought
before the profession need no more
than a passing notice. [illegible]

of permanent stricture by compression and cauterization are modes of treatment that have so little to recommend them, except in rare cases, that the method of their employment must give place to more valuable procedures, and first among these is internal urethrotomy. Complete division of all strictures anterior to the bulbous urethra, by dilating urethrotomy properly performed, is considered one of the simplest, safest and most efficient methods for the permanent and complete relief of this distressing affection, that modern art and science has made available. The necessity for carefully constructed instruments has been duly appreciated; but that necessity has been more fully met by the

urethrotome and, urethrometer than
any other instrument in use for strictures
of large caliber. The dilating urethrotomes
of Gouley and Stearns, and the urethrotome
Bumstead, Civiale, Hill, Maisonneuve's,
Gross and others have each merit pe-
culiar to itself. But the improved di-
lating urethrotome of Otis possesses the
highest merits and is the one that is
more frequently employed by the
profession since its introduction, For
the division of stricture of the meatus,
Civiale's, Gouley's and Otis meatotome
are generally used before proceeding
to operate it will be necessary to ex-
plore the urethra to measure its size
and ascertain the locality and size of
the stricture. For this purpose many
the number of valuable

that have been provided, Of the urethrometer stands prominent for stricture of large caliber, He has also a set of explorers for those of small caliber.

In the introduction of instruments into the urethra the greatest care and gentleness must be observed, The instrument must be smooth, polished and well oiled The chances for setting up inflammation, and of urethral chill must not be forgotten, The patient must be instructed in urethral hygiene, and the nature of his malady explained to him, Time and the nature of this thesis forbid a description of the operation, which may be performed with or without anaesthetics and requires great delicacy and skill, with tact in manipulations, & avoid urethral

is an instrument some less in size than Otis, and can therefore be used in strictures of smaller calibre.

Stricture of small calibre can only be treated by dilitation and the gradual method is the safest. Soft flexible instruments are the best and least harmful. When the urethral canal is nearly closed, we resort to the use of filiform or hair like bougies of which there are a variety, some of which are arranged that they may be screwed upon the end of another instrument. By this means a larger instrument for the purpose of dilating or incising the stricture may be screwed into it and pushed forward following through the stricture into the bladder. Gradual dilatation

~~sufficient~~ until the stricture becomes
of sufficient caliber for the introduction
of a urethrotome, when it should at
once be resorted to, to divide the stricture
and complete the cure. There are some
cases that require forcible dilitation
and steel instruments but such cases
are rare.

Divulsion, which signifies forcible
rupture is another method for the per-
manent cure of stricture. Here stric-
ture of very small caliber must also be di-
lated to an extent sufficient to admit
the introduction of the forcible dilator.
There are many valuable instruments
for this purpose, such as Thompson's
Dilator, Hill's, Holtz, Gouley's etc.
There are some eminent surgeons
who treat stricture after this method

But all other methods are gradually giving away to that of internal urethrotomy. Whatever plan is adopted for relief, it must be followed up by the introduction of the steel sound of a size to correspond with the normal urethra. This should be introduced forty-eight hours after the operation, and every second or third day thereafter for several weeks, until the parts are healed, and then once a week for four or six weeks. In some rare cases contraction takes place and a second operation is required.

In the selection of the method of operation, the seat of the stricture is often the controlling choice.

For strictures of the pendulous urethra, if operated upon should be cut, and strictures of the fixed urethral [illegible]

in case offering a favorable chance for recovery, should be cut; if not gradual dilatation and divulsion are the safest. But internal urethrotomy offers the best chance for a permanent cure, and without the use of dilating instruments the balance of life,

Stictures at or near the meatus should always be cut, and toward the floor of the urethra alongside of the frenum. Stictures along the urethral tract should be divided superiorly (on the roof) and the median line,

The accidents or complications meeting may be met with in operations looking to the complete restoration of contracted urethra in every part of their course, 1st Haematuria, this is of rare occurrence to any alarming effect

in the pendulous urethra, and may be controll'd by pressure and the application of ice. If occurs from division of stricture in the deeper portions of the canal, its controll is more embarassing. The digital application of ice and direct pressure with the fingers, a compress, or perineal crutch, or the tourniquet, introduction of the steel sound will often arrest it.

Urethral fever perhaps stands second in the order of complications or accidents, its treatment here would be quite out of place, it would in itself be a theme for the subject of a Thesis, this accident occured to a patient of my father's operated upon by the late Prof. T. R. Brown assisted by him and myself.

and ended fatally; and was the only
case the Doctor lost in over six hundred
operations from internal urethrotomy.
The man apparently was a good subject,
free from any organic disease, thirty
years old, a stricture of about 22 milli-
meters, and five inches from the mea-
tus. Suppression of urine has also been known
to follow the operation.
Incurvation of the Penis during erection
is an occasional sequel.

The treatment of the Complications
and Results of stricture, such as,
Extravasation Rupture of the bladder,
Epididymitis, False passage, Abscess
&c, do not come within the scope of
the subject under consideration.
In case of Retention due to an impermeable
stricture it may become a matter of

judgement to decide whether [illegible]
external perineal urethrotomy without a guide,
or to use the aspirator and [illegible] to pass
the stricture on a subsequent visit. The
former operation without a guide is considered
an exceedingly difficult operation, in view
of the fact and the danger attending and
supervening on this operation, it is
decidedly preferable to puncture the
bladder above the pubis without aspiration.
There can be very little danger attending
the puncture of a distended bladder in this
region with the ordinary aspirating needle,
and should there [illegible] be chosen in all
cases of retention due to impassable
stricture. After the bladder is relieved
of the distension, a filiform bougie may
be passed into the orifice or probably
through the [illegible] and also

remain a day to act by continuous dilitation; when it will be under control. External urethrotomy may be expedient in cases complicated with some of the results of stricture as well as in those of a traumatic nature.

Summary of Treatment of Stricture

Spasmodic Stricture requires, rest, recumbency, warmth and moisture, anodynes, the inhilation of Chloroform, Belladonna, Apperients &c.

Inflammatory Stricture is relieved by the same local means as in the spasmodic variety, in addition to local bleeding &c.

Organic or Permanent Stricture is only relieved by mechanical and surgical means, preceded by accentuating

the condition of the bladder and kidney of rest, warm baths, the tincture of the chloride of iron, quinia &c in tonic and antipyretic doses,

All strictures at or near the meatus must be divided.

All strictures of large caliber in the pendulous and deep urethra uncomplicated, must be divided by internal urethrotomy,

All strictures of small caliber should be treated with gradual and sometimes with continuous dilatation with soft instruments up to a size sufficient for the introduction of a urethrotome, when they should be divided, except in some unpromising and deep seated cases they may be relieved more safely perhaps by Dévalsion,

All impassable strictures

may usually be overcome without reten-
tion, by time, patience and skill with
whale-bone bougies; if not by external
perineal urethrotomy; but if retention,
then after all other available means
fail relieve the distended bladder
by puncture above the pubis with the
aspirator, or exceptionally through the
rectum to gain time.

For stricture of long standing
and grave complications external
perineal urethrotomy

Epilepsy

By

Wm Taylor Edmunds

Columbia;

South Carolina

has some objections
as certain hysterical
attacks may take on
all of these symptoms
and call for certain dif-
ferential points in diag-
nosis which I will en-
deavor further on to make
plain -
Symptoms there are certain
premonitory phenomena on
which great stress is some-
times laid called the "Aura
epileptica". These may con-
sist of various warnings
such as cold rapid comp-
ing sensations, tingling &c

growing less and less,
air gradually is allowed
to enter, the congestion
gives place again to
pallor, profuse perspiration
occurs and the insensibility
continues nothing re-
mains but perhaps some
noise in respiration. After
a while consciousness
returns and with much
confusion of thought
the patient stares around
ignorant of what has oc-
curred. Doorsiness [illegible]
[illegible] and he falls
into a heavy deep sleep.

The Spasms are sometimes
of so violent a nature
as to require much force
to keep the patient in
bed, or to keep him from
hurting himself. One side
is said to be affected gen-
erally more than the other,
features drawn to one side
& greatly distorted. If
this be true always, in
a typical case of Whi-
lipsy Gravior, why should
one side be more affected
than the other?) Sometimes
during the Paroxysm &
the Sex and worm are

passed involuntarily showing a relaxation of the Sphincters also seminal emissions &c. Altogether an attack of Epilepsy to one who has never witnessed one is quite calculated to alarm but the attack itself is of minor importance and as a general thing lasts but a few minutes.

Epilepsy has been divided by the French into two distinct varieties E. Gravior just described and E. Mitior or le Grand Mal & le petit Mal

immediately again to his
mouth, or he may be
walking is noticed to
apparently stagger but
may not lose a step the
moment after to wake
ignorant that anything
has occurred. So also
with scarcely a momentary
loss of consciousness there
may be twitching of the
muscles of the face
neck, dilatation of the pupils
and pallor of the counte-
nance succeeded by a
dazed expression which the
individual shake off, remark

my that he is "all right"
Often there may be observed
an immobility of countenance,
a fixed stare as if pa-
tient was going to have
a fit, but does not. Many
more such illustrations could
be given but here the same
[illegible]
Causes most prominent are
hereditary history of Epilepsy
or Insanity or some morbid
nervous disease of parents
or grandparents. Debauchery
of all kinds, alcoholic in-
cesses or venereal, freight,
grief, blows upon the head

increased amount of fluid in subarachnoid space.

Diagnosis:

A typical case of True Epilepsy if, seen during the attack, is very easily diagnosed, the sudden fall the characteristic cry, the pallor, rolling upward of the eyes, followed by congestion of the face caused by the efforts of the patient for oxygen. Tonic convulsions of the entire voluntary muscular system, the horrid contortions

and distortions of the facial muscles, with grinding of the teeth, and froth, issuing from the mouth, stained with blood. The breathing is stertorous, with guttural sound produced by spasmodic closure of the glottis, pupils dilated, then the tonic succeeded by clonic convulsions growing gradually less, (face ag and becomes pale, respiration easier consciousness returns and sleep closes the scene

All cases are not thus presented to us, for often there is required a nicety of discrimination upon which depends not only the proper methods for relief, but also our prognosis and the future happiness of our patient — The latter for this reason, and particularly in a young lady, that the very name, in the popular view, carries with it a "stigma" which debars her from those pleasures, which constitute so much of

life as it should be enjoyed; taking from her, her chief mission, as an "helpmeet to man." The greatest difficulty will be in differentiating a True, from a False case, or Hysterd-Epilepsy. Tho' the latter may simulate it to such an extent as to deceive the casual observer, still then are symptoms pathognomonic of Epilepsy Gravior, the suddenness of the fall, the biting of the tongue & consequent staining of the mucous, all of these

dependent upon the absolute loss of consciousness. Against the malingerer will resort to this disease, and to all appearances present the above phenomena, but this is easily detected, he cannot voluntarily dilate his pupils or cause his face to become pale or livid, neither does Coma supervene. Having determined upon our diagnosis we will now discuss the rationale of its treatment. Which I believe in a case once thoroughly

developed can at best be only palliative.

Treatment: I suppose on entire catalogue of drugs acting directly and indirectly on the nervous system has been exhausted without finding any specific.

Marshall Hall recommended Strychnia in small doses.

Van der Kolk counter-irritation over the mucha by cupping, setons &c. which in his hand and others have proved successful. Surgical Methods such as Ligation of the Carotids. Tracheotomy and

after injuries of the head.
Trephining.
Of the Compounds of Zinc,
the Oxide, is resorted to by
many, & Herpin States to
have cured 26 out of 42 cases
with this remedy, he subse-
quently advocated the use
of the Tactate instead of the
Oxide. Our learned Neurologist,
Prof. F. T. Miles, after giving
the subject most ample con-
sideration uses almost ex-
clusively the Bromides -
Commencing with small
doses and gradually in-
creasing the quantity with

the attacks abate, Potassium Bromide, Sodium etc.

If the patient is seen during the seizure there is scarcely any necessary for more to be done than to place him in a comfortable position and prevent him from hurting himself, the after treatment as recommended by Dr Mills, and good hygienic measures instituted. Healthy out door exercise, easily digested food, Tonics and attention to the regularity of the bowels. Patient should sleep upon a hard bed.

and the room should be properly ventilated.
Our Progenies should be guarded, and guided by the causes, which they are of, an excentric or centric origin, the former affording a much more favorable termination.
The Great Napoleon and Caesar, are said to have been Epileptics, and it is related of the former that the attacks always came on during Sexual intercourse, brought on by reflex action from the organs

In a medico legal point of view, confirmed Epileptics are not altogether responsible for their actions. As the attacks assume sometimes the most violent forms of Mania, and homicide is the result, the poor unfortunate not having any cause for, or subsequently remembering anything of his crime. This should always be borne in mind, and when we know that Epilepsy is a disease to which the culprit has been subjected, he should be given the benefit of the doubt.

Hiram Woods, Jr.

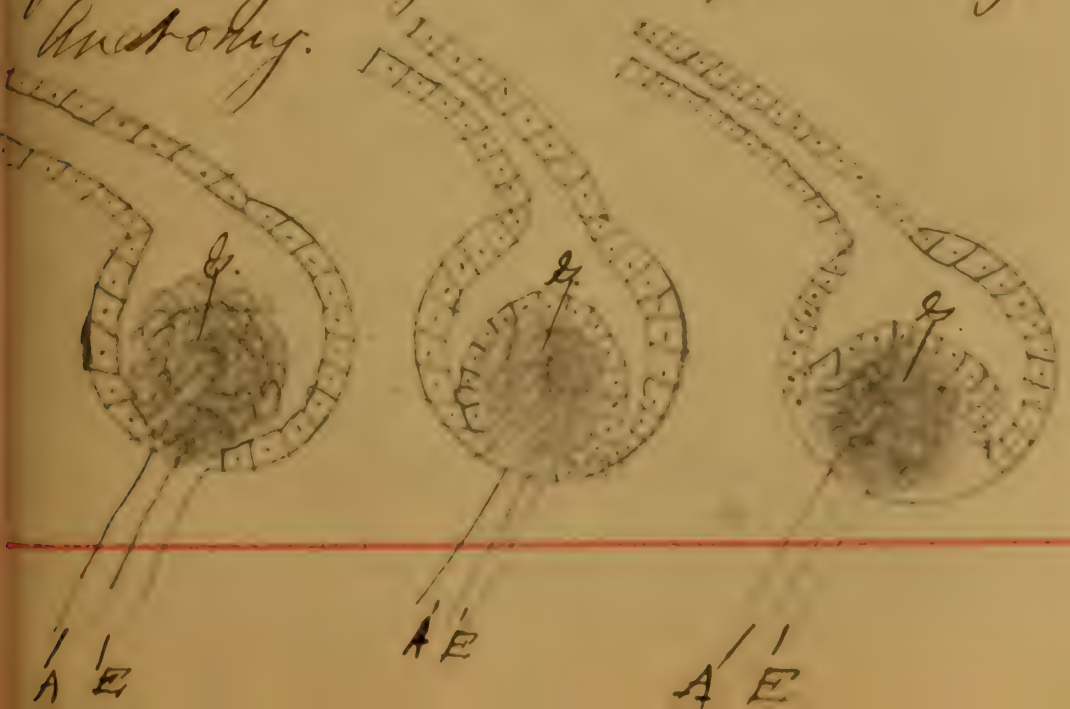
Feb. 1882.

The Physiology of the Kidneys.

The Kidneys, as is well known, are the great excreting glands of the body. To them belongs the important duty of removing from the organism the large majority of those substances, which, if retained, would act injuriously on the animal economy. Their situation in the body & the tissues around them are admirably adapted to preserve them from external injury. Their blood supply is far greater than any other gland - with the exception of the Liver - their arteries being large, and connected directly with the Aorta. When we come to the true Urinary structures within the Kidneys, we find that these arteries have divided and sub-divided into the numerous Capillaries, each part of the organ receiving a most liberal supply of blood. Beyond the Capillaries these join

run the uriniferous tubules to form the Ureter at the Helves of the Kidney These tubules are lined by Epithelium. The nature, distribution and function of this Epithelium have been the cause of much controversy among Physiologists. Its nature seems to be now definitely settled. Its distribution and function are still matters of discussion and of theory. A famous Physiologist of Europe - Heidenhain - has recently given to the world the results of some important histological investigations as regards the distribution of this Epithelium, and has deduced from his discovery a theory of Urinary secretion. I will be my object here to give (1) a synopsis of the old or Filtration theory & some of its difficulties, (2) Heidenhain's theory, (3) to try to show that the latter must be some of the difficulties of the former.

I. Filtration Theory — In the Cortical portion of the Kidney we find the true urinary structure - the "Glomerulus" surrounded by the Malpighian Capsule, which then goes to form the Uriniferous Tubule. The tubule and its capsule are lined by Spheroidal or Glandular Epithelium such as is found in the secreting glands of the body. All is to the distribution of this Epithelium, as given by writers in Anatomy, that I now desire to call attention. The following diagrams are from Gray's Anatomy.



The only difference in these diagrams is the distribution of the Epithelium In A it is not reflected at all upon the tuft of Capillaries making up the Glomerulus. In B it covers the whole of the tuft, and in C it is reflected only on that part of the Glomerulus looking toward the commencement of the tubule. With this idea of the distribution of the tubular Epithelium, the old or "Filtration" theory of the formation of Urine has been formed. The basis of this theory is that the Watery part of the urine is forced by Arterial Pressure through the Capillaries of the glomerulus by the process of Filtration. This theory finds its support chiefly

in the fact that what we
bring about increased blood pressure
in the Kidneys — increased Cardiac
action; relaxation of Renal Arteries
by section of Renal nerves, Vaso
Motor contraction in other parts of the
body, with no accompanying contrac-
tion in the Renal Vessels, etc —
also causes an increased flow of
urine. Further, that what we by pass
blood pressure on the Kidneys, —
general Vaso Motor Paralysis
by section of cord below the Me-
dulla, reflex stimulation of Vaso-
Motor centre causing general con-
traction etc, etc — also dimin-
ishes the flow of urine. Indeed,
there can be no doubt that the
quantity of urine passed does

vary with Renal blood pressure.

The question now arises is: Is this difference in the amount of urine dependant wholly on more changes in blood pressure? It is here that Heidenhain's theory differs from the "filtration" theory. (It may be remarked that both theories hold the same position as to Urea. They both agree that Urea & some of the other solid elements of the urine are picked out from the blood by the Epithelial cells along the "tubuli uriniferi".) Before giving Heidenhain's theory, however, it will be well to briefly state some of the difficulties in the way of accepting the "Filtration" theory:

(1) After ligation of Renal Vein, although blood-pressure in the capillaries is increased, the flow of urine ceases. Remove the ligature, and the flow will be reëstablished.

(2)(a) After ligation of the Renal Artery the flow ceases. On removal of the ligature, although there is a great blood-pressure almost immediately, the urine will not flow for some time. (b) Also, if the ligature is kept on a long time, the secretion of urine will be permanently stopped. (c) Again, when the urine does flow, it is at first albuminous. Seeing (a) & (b) till to-day, if we look for an explanation of (c), we find it to-day upheaving the

"Filtration" theory — speaking about this phenomenon after the ligature had been removed as follows: "The arrest of the circulation through the glomeruli had damaged the capillary walls, and so allowed the passage through them into the interior of the Malpighian capsules of the natural proteids of the blood, which in a normal condition of the capillaries cannot effect such a passage." This seems to me to be begging the question. At least one of the "natural proteids" of the blood can pass through the healthy capillary wall: this is albumin. In the ordinary exudation from the capillaries, which goes on all over the body, we see albumin. It is one of the natural constituents of the lymph thus formed by this capillary exudation. If this is true of capillaries

in general, why should there be an exception here in the kidneys? I do not know of any reason. This gives (3) Why is not albumin always in the urine? The above explanation as to "Capillary Walls" seems to be false. Another attempt at explanation is that the same cells, which pick out the Urea from the blood, also catch up the albumin as it passes along the tubules. This explanation does not seem to be as probable as the one given by Heidenhain's theory and which will be given later.

(4) When Vaso-Motor influence is cut off from the body, the injection of certain substances gives rise to a copious urinary secretion, which must be apart from ~~the~~ blood pressure. Let us now look at

II. Heidenhain's Theory.

Here we are first met by a Histological discovery. Heidenhain has found that not only does the Epithelium ~~lose~~ surround the tuft of capillaries (as shown in B. page 3), but it dips down among the capillaries, a layer of Epithelial cells surrounding each set of capillaries. He has separated this Epithelium from the blood-vessels, and has shown it to be of the glandular variety. On this discovery he has founded his theory of "Secretion," which is as follows:
(1) The watery part of the urine is not a filtration, but a true secretion by the Epithelium surrounding the capillaries of the glomerulus.

2) This glomerulus is to nourish this Epithelium, and to furnish it a large supply of blood, from which to draw its materials of secretion.

3) Some of the solid elements (still to be demonstrated) are contained in this Epithelial secretion. Urea is picked out of the blood by the cells further down the tubule.

This theory seems to me both to concur with the facts proven in regard to blood pressure, and also to answer some of the difficulties, which the theory of filtration cannot explain.

As to the difficulties given above (p. 7 x):

(1) When the Renal Vein is tied, secretion of urine ceases, although blood pressure in the glomerulus is increased. This happens because the blood in the

capillaries is not of such a quality as enable the cells to carry on their secretion. It is, as it were, a damming back of venous blood, whereas, in all secreting glands, we see an increased pressure of "pure, bright, arterial blood". After removal of the ligature, circulation is re-established, pure, arterial blood is supplied to the Epithelium, and urine is again secreted.

(2) When the artery is tied, secretion stops because the cells are deprived of their nourishment, without which they cannot function. Consequently, deprived of their natural supply of food, they become exhausted. After the ligature has been removed, then cells are again supplied with blood. They are not, however, able to function

on account of their exhausted condition. It takes a certain time for them to recover their activity, and if they have been deprived of their blood supply for a long time, they don't recover it at-all. Hence the secretion of urine will be delayed until they have recovered their strength. Also, the first urine passed is albuminous. We have already seen the "filtration" explanation of this fact. It seems to me that a better explanation can be given on Heidenhain's theory. This is: The albumin is in the capillary exudation here as in other parts of the body. In health it is taken up by the Epithelium cells around the Glomerulus, and some of it appropriated for

their nourishment, the rest being sent off through the lymph channels of the kidney. Owing to their weak condition these cells are unable to take up all the albumin in the excretion directly after removal of the ligature. Hence some of it will pass through into the tubule. Here it will stay till the cells have sufficiently revived to secrete, when it will be washed away in the first urine. (3) Why is not albumin always in the urine? Not because it does not pass through the capillaries, nor because it is taken up by the cells along the tubules. It is not found normally in the urine because the Epithelium cells around the glomerules dispose of it as explained above. (4) If the flow of urine when certain substances (for instance any of the irritants) are injected,

after increased pressure is rendered impossible by destruction of Vaso-Motor action following section of the cord, is thus explained by Foster: "The presences of these substances in the blood excite the renal Epithelium to an 'unwonted activity', causing them to pour into the tubules a copious secretion." That "in ordinary states of the blood the Epithelium cells are quiescent, or at least do not secrete any appreciable amount of fluid, otherwise the mere interference of the pressure arrangements due to the section of the Medulla Oblongata would not arrest the flow." It seems to me that this is no true answer to the difficulty. Laying aside, for the moment, the consideration of the kidney, let us look at an ordinary secreting gland. (a) When the diet flow—

illary gland is in a state of great activity, "its arteries are dilated, its capillaries filled, and the blood flows rapidly through the veins in a full stream of bright arterial hue."
(3) Again in this gland it is known that stimulation of the proper nerve will give a secretion - independant of increased blood-pressure - since we see stimulation of the chorda tympani giving rise to copious flow in an animal which has just been decapitated. These facts show us that (1) great glandular activity + great blood-pressure go together and (2) that, although this is so, increased blood pressure is not an absolute essential to setting up glandular activity. Returning now to the kidney we found (1) Increased blood pressure is accompanied by an increased flow of urine (2) The cutting

off of Vaso-Motor influence by section of the cord can prevent any increase in blood-pressure in the kidney by destroying the medium which could bring about this increase, with a compensative decrease somewhere else. Now, when this section has been made, injection of certain substances - say urates - causes a flow of urine. Is it going too far to infer that these substances act as stimuli on the nervous mechanism of the Renal Epithelium, and cause them to secrete in the absence of increased blood pressure, just as stimulation of the chorda can cause a secretion of saliva in the Sub Max. gland under like circumstances? Again, in the case of the Sub Maxillary gland, we see that in spite of the presence of tasted substances on the tongue it cannot

a secretion of saliva with accompanying increase of blood-pressure in the gland. Also in the Kidney – as explained above – the presence of certain substances in the blood will cause a flow of urine after increase of blood-pressure has been rendered impossible. If these substances in the blood can have this stimulating effect on the Epithelium where blood-pressure can't be increased, is there any reason why they should not have the same effect when the blood pressure can be increased? In other words, it seems to me that, when urates etc are in the blood, they act on the Renal Epithelium in the same way that those sapid substances act on the Submaxillary gland when they are placed on the tongue. Their presence, in the latter case, causes secretion with

increase of blood-pressure. The water etc, in
excite the renal epithelium to secrete.
This excitement calls for more blood
and greater blood-pressure, the Vaso-
Motor nerves answer the call, and
bring about the great pressure in the
kidney, which accompanies, but does
not immediately cause the secretion.
Nor does it seem right to call this se-
cretion an "abnormal activity." It should
not be the rule: Not only does it not
contradict, but it fully sustains and
explains what is proved about the
"pressure arrangements". In addition
to this it explains some difficulties, for
which the "filtration" theory has no
explanation. Foster himself admits
the possibility of his explanation being
erroneous. He says: "It may be that

in some cases what appears to be simply a Vaso Motor action is after all a direct action of nerves on secreting cells accompanied by adjuvant but not indispensable vascular changes."

All secretions ultimately depend on some nervous impulse. Where this impulse originates in Renal secretion I do not know, nor am I sure that it is known. That there is, however, some mechanism of this kind apart from vascular changes is, I think, proved. If future investigations shall favour Heidenhain's theory to be the true one in which the kidney work, not only will it be an advance in Physiology, but it may also furnish the stepping stone to the solution of the intricate problems which meet us in the Diagnosis and Pathology of kidney diseases.

[illegible]

Geo. Pneumonia

By

S. S. Peterson

Student of

The University of Maryland

School of Medicine

Session

1881–1882.

is an active inflammatory process involving some portion of one or both lungs. The alveolar is the lung tissue which is most inflamed in the croupous, whereas the small ramifications of the bronchial tubes are the parts affected by the catarrhal form of the disease.

Some very [illegible] ters hold that the inflammatory process is only a symptom of a general constitutional disease while others of equal [illegible] contend that it [illegible] the disease [illegible]

[illegible] is
[illegible]ally divided into three sta-
[illegible] that of engorgement, red hepat-
[illegible]
[illegible] This classification of [illegible]
[illegible]
appearance which [illegible] affected
parts [illegible]
[illegible]

[illegible] the first stage
the lung is of a brownish color,
its specific [illegible]
[illegible], and it [illegible]
a [illegible]
[illegible]. It gives little or no crepitant
[illegible] when pressed between the fin-
gers [illegible]
[illegible]
[illegible] of [illegible] swellings.

[illegible] it presents a red or brownish color and bleeds freely.

In the second stage we find the affected portion of the lung, friable and easily breaking down under the slightest pressure, It will no longer float in water. This is caused by the exudation [illegible]

the alveoli, the mucous linings of which are thickened and hypertrophied.

The third stage may take either one of two courses, either of the affected parts to their normal condition, or transformation of the sanded and coagulated material into pus. The first is by far the most frequent and of course the most favorable termination of the inflammatory process.

When resolution occurs in the third stage the solid matter which fills the alveoli and bronchioles lying in pus and the watery part is taken up by absorption while the [illegible] solid particles seem to undergo a fatty change and are then expectorated

of the disease in [illegible] per cent of all cases. In this respect the disease differs from Phthisis which almost always attacks the apex of one or other lung.

Croupous pneumonia passes through its several stages with great regularity and uniformity.

The stage of engorgement lasts from two to three days and that of red hepatization goes on from 4 to 8 days or up to the crisis which may appear at any time from the seventh to the twelfth day of the disease. The third stage dates from the occurrence of the crisis, and in cases which terminate by resolution continues from two to five days. In a large ma-

gority of cases the crisis occurs on the seventh day of the disease. If the disease goes on to gray hepatization the third stage may last for an indefinite length of time, and almost always continues for a week or ten days. It is needless to say that those cases which terminate by resolution are the most favorable for the patient. Deathmor pneumonia is caused by a general collapse of the whole system.

The question of the mortality of this disease is far from being a settled one. Almost every writer places a different estimate upon it.

There can be no doubt however that where is a clear diagnosis is made, and proper remedial agent

[illegible]

of cases [illegible] and our
prognosis should be given accordingly
as the symptoms are severe or other-
wise. The patient does not nec-
essarily die because an abscess forms
in the lung for there have been very
instances of patients carrying a large
abcess in his lung for many years
without any bad results and indeed
many have been known to recover
entirely; Death may be caused [illegible]
ring the second stage, either from
the mechanical obstruction to the
entrance of air into the [illegible] or [illegible]
[illegible] of the [illegible] from [illegible]
disturbance which sometimes occurs
at that time.

[illegible]

[illegible]

diagnosis of [illegible]

[illegible] symptoms are as [illegible]

the disease is generally preceded

or introduced by an acute bronchial

catarrh, a feeling of surgeon chill-

ness over the whole body which

may amount to a distinct rigor.

There is a dull pain in the chest

at a sudden rising of the temperature

of the body which in from

24 to 36 hours goes up to 104° to 105°

[illegible] young children more

than two one convulsion may occur

instead of the rigor. The face is

generally flushed, the conjunctiva is

injected, there are fine felt in the

back and a general soreness of all

the muscles of the body. [illegible]

lation is full and strong, while
the respiration is rather [illegible]
account of the patients [illegible]
inflating the chest lung [illegible]
from doing so on account of the
pain which a full respiration pro-
duces, and also because one part of
the lung is [illegible] to the [illegible]
of the whole [illegible]
of [illegible] and sometimes [illegible]
[illegible] with [illegible]
headache. The tongue is coated
with a [illegible]
The workings of the [illegible] of the
nose is very noticeable at this time
and is [illegible]
[illegible] it has been very appropriately
called the [illegible]
The [illegible] which appears [illegible]

ed, and when the lung has been
consolidated the sonority is very
markedly diminished, that it is
rather increased if the lungs still
contain some air. There is in
creased dullness over the inflam-
ed area on percussion. The vesic-
ular murmur becomes more feeble
and is generally replaced with
the crepitant vesic. This vesic has
been compared to the sound produced
by rubbing a hair between the fingers
while holding it close to the ear. This
vesic is produced by the sepa-
ration of the sides of the alveoli
and bronchioles which are stuck to-
gether by the exudated material, and
on the account of can be heard
only during inspiration, if cement

nearly all cases.

[illegible] [illegible] [illegible] [illegible] [illegible]
ed and the patient will if careful
make a [illegible] [illegible]

In the unfavorable cases,
however, after the fever has abated, it
again [illegible] [illegible] [illegible] [illegible]
all the symptoms [illegible] with [illegible]
ed severity. The pulse becomes weak
and [illegible]. If delirium has exist-
ed before it will now assume a low
muttering form, and if it has not
existed it may now come [illegible]
in the form of hallucinations [illegible]
[illegible] [illegible] [illegible] [illegible] the system
gradually becomes more [illegible]
poisoned by the retained [illegible]
[illegible] [illegible] the [illegible] of life gradu-
ally [illegible] [illegible] [illegible] death [illegible]
in by profound Coma.

[illegible] may be [illegible]

[illegible] pneumonia and bronchitis

[illegible]

Treatment: As [illegible]

[illegible]

[illegible] view to [illegible] the patient [illegible]

[illegible]

[illegible] than [illegible]

[illegible]

[illegible]

[illegible]

by giving [illegible] of [illegible] and

[illegible] with the case at is first

[illegible] we may [illegible]

[illegible]

[illegible]; that if it is not [illegible]

[illegible]

[illegible] in its [illegible]

alone, a larger majority of cases with a
cover, and so a great number of
remedies have had the power of curing
the disease ascribed to them [illegible]
[illegible] the patient recovered in spite
of the treatment and not because of
it.

[illegible] Stimulants are used
with great advantage in the latter
stages of the disease, to support the
system, and increase the vital power.

Oil of turpentine used as an
inhalant to promote expectoration.

The most [illegible] remedy
after opium and quinine have been
given, is the Cask of Arsenic. It
acts [illegible] in the [illegible] and
third stages by its [illegible]
the [illegible] material, and [illegible]

its [illegible] action,

The use of [illegible] is not held in the high estimation now that it formerly was. There can be no doubt that its reputation has suffered very unjustly, the reaction against it is as much as [illegible] in its favor formerly was. When a mode of treatment has been handed down to us from the almost forgotten ages of the past, it is almost always safe to assume that it is not entirely devoid of merit. The same might well be said of [illegible], and no doubt they have only for a time gone out of use while the profession [illegible] with the [illegible] of the human mind at large has something new, testing those new remedies and [illegible]

of treatment [illegible]

our resources, and some of [illegible]

as worthless [illegible] valuable.

Dr T. McSherry uses dry or wet cups over the chest of [illegible] patients.

I am acquainted with the practice of one physician, whose success during a long and arduous practice [illegible] last a [illegible] consideration. He relies very much upon the use of the "Fly Blister" to the [illegible] chest, and [illegible] has evoked its full effects until [illegible] if one blister will not produce the effects he extends them to the [illegible] sides of the [illegible]

Thesis.

Respectfully Submitted

To

The Faculty of Physic

Of

University of Maryland

By

W. B. Settle Jr.

Of

Virginia.

1882.

Gentlemen:

In justice to you, as well as to my self, I think it my duty to state that the enclosed was obtained from the Works of different authors, arranged in such manner as I thought proper

Respectfully
W. B. Bellis Jr.

University Hospital.

Strychnia.—

Of all the medicines in common use, only the products of the genus Strychnos belong properly to the class of Spinal stimulants. There are some others which have a stimulant influence over the spinal functions, but they have also properties which class them elsewhere, and there is no one which approaches in power those above referred to. It is singular that the history of any powerful and peculiar medicine should be so obscure as that of nux vomica, the original source of Strychnia. It was known to the Hindoos as a poison, and was

introduced into Europe in the sixteenth century. During the sixteenth, seventeenth, and a part of the eighteenth centuries, although it was well known to be poisonous to animals, it was affirmed not to be so to man. Strychnia is the chief alkaloid and active principle of Nux Vomica. It is obtained by the following process: Take of Nux Vomica rasped forty-eight troyounces; Lime in fine powder six troyounces; Muriatic Acid three troyounces and a half; Alcohol, Diluted Alcohol, Diluted Sulphuric Acid, Water of Ammonia, Purified Animal Charcoal, Water,

each a sufficient quantity. Macerate the mix comica for twenty four hours in sixteen fluids of water, acidulated with one third of the muriatic acid; then boil for two hours, and strain with expression through a strong muslin bag. Boil the residue twice successively in the same quantity of acidulated water, each time straining as before. Mix the decoctions, and evaporate to the consistence of thin syrup; then add the bark previously mixed with a pint of water, and boil for ten minutes, frequently stirring. Pour the whole into a double

muslin bag, and, having thoroughly washed the precipitate, press, dry, and powder it. Treat the powder repeatedly with diluted alcohol, in order to remove the brucia, until the washings are but faintly reddened by nitric acid. Then boil it repeatedly with alcohol until deprived of bitterness, mix the several tinctures, and distil off the alcohol by means of a water bath. Having washed the residue, mix it with a pint of water, and, applying a gentle heat, drop in enough diluted sulphuric acid to neutralize

and dissolve the alkaloid. Then add purified animal charcoal, and, having boiled the mixture for a few minutes, filter, evaporate, and set aside to crystallize. Dissolve the crystals in water, and add enough water of ammonia to precipitate the strychnia. Lastly, dry this on bibulous paper, and keep it in a well-stopped bottle. U. S.

Properties.— Strychnia is seen in commerce as a white powder, or crystallized in short, quadrangular prisms. It is inodorous, has a very persistent,

bitter taste, and is sublimable only when very minute quantities are carefully heated. Pelletier and Caventou, who discovered this alkaloid in 1818, found it soluble in about 9700 parts of cold, and 2500 parts of boiling water, and to be insoluble in ether. It requires 120 parts of cold, and ten parts of boiling 80 per cent. alcohol for solution (Willstein); but it is very sparingly soluble in absolute and in dilute alcohol. It dissolves in about 5 parts of chloroform (Tellenkofer); in 300 parts of glycerin (Cass

and Garot); and is also soluble to some extent in volatile and fixed oils, in creasote, benzol, and amylic alcohol. Its solubility in water is not increased by ammonia or caustic potassa; but dilute acids render it much more soluble, with the formation of neutral salts, which are mostly crystallizable, and are precipitated by alkalies, alkaline carbonates, and, after sometime, by soluble bicarbonates.

The composition of Strychnia is expressed by the formula: $C_{21} H_{22} N_2 O_2$ (Regnault).

Tests.— Strychnia and its salts dissolve in concentrated sulphuric acid without color; but on the addition of a little peroxide of lead a beautiful blue color is produced, passing into violet, red, and finally into yellow (Marchand). If bichromate of potassium is used instead of the lead oxide, a deep violet color is produced, or a blue color if strychnia is in excess (Otto). A similar color is obtained with sulphuric acid and ferridcyanide of potassium (Davy); it passes like the preceding, though more slowly,

through red into yellow. The solution of strychnia in sulphuric acid containing some nitric acid yields on the addition of binoxide of manganese a purplish violet color (Mack, Erdmann); and a similar color, but rapidly fading to yellow, is produced with chloric, chlorous, and iodic acids and their salts, with manganic sulphate and potassium permanganate (Lefort). If much contaminated with organic matter, the alkaloid is best purified by dissolving it in a dilute acid so as to free it from fatty and resinous

matters, liberating it by ammonia, and dissolving it by agitation with chloroform; if necessary, the process is repeated, and the residue from the evaporation of chloroform is tested as above. If the above tests are carefully applied, a very minute quantity may be detected, according to Wenzell (1870), in a solution containing the $\frac{1}{900000}$ part of strychnia.

The freedom from inorganic matters is readily proven by the absence of ash on incinerating a portion. Concentrated nitric acid should not produce

a red color, showing the absence of brucia.

The following are the salts of strychnia, namely: Strychniae Sulphas, Strychniae Acetas, Strychniae Hydriodas, Strychniae Hydrobromas, Strychniae Hydrochloras, and Strychniae Nitras.—

Physiological Action.—Strychnia rubbed upon the skin persistently acts as a local irritant. In small and repeated doses, internally, it is a tonic, increasing the appetite and the urinary secretion, and the fecal discharges also when these are infrequent, but diminishing the latter when

their frequency is due to atony of the bowels. In somewhat larger doses, the stomach is often disturbed; and in still larger doses, the muscular system becomes disordered. It exerts no perceptible action upon the brain, but seems to increase the functional activity of the special senses. As experiments upon animals demonstrate, strychnia is absorbed by the veins and the lymphatics, and when introduced into the connective tissue or the serous cavities; it is said to be more readily absorbed from the rectum than from the stomach, and

but little from the urinary bladder. If taken mixed with the food, or immediately after a meal, and especially a meal of fatty substances, its action may be greatly retarded, and hence even excessive doses may, under such circumstances, fail to act poisonously. In like manner, if the food contain a large proportion of tannin, an insoluble tannate of strychnia will be formed, and the action of the poison mitigated or prevented. As a general rule, the more rudimentary or the more feeble the nervous system is, the more readily it is acted upon

by strychnia; thus females and children are disproportionately affected by it, notwithstanding the rapidity with which it is eliminated with the urine in the latter. On the other hand, old persons are very susceptible to the action of small doses, perhaps because the medicine is in them slowly excreted by the kidneys. It would appear that sleep retards the poisonous action of the medicine; it, at all events, restrains an open manifestation of it by spasms, &c., just as profound repose in man or animals under the toxical

operations of the drug tends to prevent spasms, while excitement is apt to develop or to aggravate it.

When strychnia acts poisonously but gradually, owing to the moderate dose taken, or to its slow absorption from the stomach, the patient complains first of general uneasiness restlessness, soreness and heaviness of the limbs, and stiffness of the joints and muscles, particularly of those of the chest and lower jaw, and these effects are succeeded by spasmodic symptoms. When the dose has been large

and the conditions are favorable to its rapid absorption, the first phenomena may be clonic convulsions, or violent muscular twitchings, which, with the accompanying sensation, have been compared to the effects of an electric shock. Whether rapid or slow in their access, these phenomena are excited and intensified by all external stimuli. They are succeeded by tetanic, muscular spasms, during which the arms are rigidly bent and the legs extended, the hands being clinched and the feet extended and arched

the lower jaw firmly fixed against the upper, and the body arched forwards. The rigid contraction of the respiratory muscles renders breathing laborious, or even temporarily suspends it, and, as a consequence of the immobility of the chest, the blood accumulates in the veins and gives a livid color to the skin. The pulse is rapid, and unequal both in volume and force, and the heart beat is also rapid and fluttering. The muscles corners of the mouth disclose the set teeth, and foam

issues from between them, while the staring eyes and contracted brow give to the countenance an expression of anguish mingled with fright. The mind generally remains unaffected, and pain is not often complained of. The convulsions may be altogether tonic, and so continue without intermission until death; but more usually they are clonic also and are interrupted by intervals of calm, or, rather, of exhaustion. But, during such intervals, the slightest stimulus may suddenly renew them. Generally

the spasms grow less violent, but not so the disorder of the circulation and the exhaustion of muscular power; they become more and more marked until death, which may be due immediately to asphyxia or to asthenia, according as life terminates during a paroxysm or not.

In fatal poisoning by strychnia death may take place within five minutes, and is hardly ever delayed more than five or six hours. If a person takes a large dose and dies quickly, a residuary portion

may be readily found; but if a small dose has been taken, and the person has survived some hours, it is probable that none will remain in the stomach. The smallest fatal dose of strychnia taken by an adult on record is said to have been half a grain. A child between two and three years of age died in four hours from taking one sixtieth of a grain. On the other hand, recovery has taken place after the ingestion of three, four, and even seven or eight grains, and in one case eight

grains of nitrate of strychnia and twelve grains of the pure alkaloid were taken without fatal effect.

After death, caused by Strychnia, cadaveric rigidity is usually marked with opisthotonos, clenching of the hands and flexion of the arms across the chest. The face is usually pale, but sometimes livid. The muscles are rigid, and all the internal organs are gorged with dark blood, the cerebral and spinal membranes not more so, nor more uniformly, than the rest; they may contain

a serous effusion; the heart may either be contracted, dilated, or natural. These lesions indicate the effects, rather than the mechanism, of strychnia poisoning. But they agree with the symptoms in showing that the cause of death by this poison is primarily asphyxia produced by rigidity of the muscles of respiration. This view does not exclude, as possible factors in producing the result, exhaustion of the heart or spasm of that organ.

Medical Uses. — Strychnia is most efficient in the cure of functional paralysis, whether

depending directly upon anaemia of the spinal cord, or upon general exhaustion. Such are cases due to venereal excesses, hysteria, intense mental emotion, concussion of the spinal marrow, abuse of opium or alcohol, lead poisoning, gout, rheumatism, etc. Tetanus has been cured by strychnia, contrary to all expectations founded upon the accepted mode of action of the medicine. In amaurosis, free from cerebral complication, it is very useful. It has also been found beneficial in chorea, constipation, dysentery, cholera, diarrhoea, impotence,

incontinence of urine, eczema, and spermatorrhoea; and in small doses it has been used with excellent effect as a general tonic, where there is loss of nerve power, and as a stomachic in dyspepsia, and to relieve the vomiting of pregnancy.

Administration.—

As a general rule it is better to begin with one thirtieth of a grain, and cautiously increase the dose until a slight manifestation of its specific effects occurs, or until the object of its administration is attained. For hypodermic in-

jection a solution of four grains of sulphate or muriate of strychnia in a fluidounce of water is used. Each minim contains the one hundred and twentieth of a grain of the salt. Two minims or one sixtieth of a grain of strychnia may be used as a primary dose. In all cases in which strychnia is used, the modifying operation of idiosyncrasies and the existing disease must be regarded.

Treatment of Poisoning by Strychnia. — In the case of poisoning by strychnia taken into the stomach, free vomiting

should be produced by mustard and warm water, or, as has been found successful in one case, the hypodermic injection of one third of a grain of apomorphia, after which the bowels should be purged with castor oil or a saline laxative. When asphyxia threatens, artificial respiration should be resorted to. As mechanical antidotes which retard the absorption of the poison, lard, sweet oil, and milk have been used with apparent success, immediately after the poison was taken, and before its spasmodic

action had been developed.
Animal charcoal and also tannin
have been used with the same
view. Of the other alleged antidotes
all are more or less sedatives
of the nervous system, and therefore
antagonists of the spasm pro-
duced by the poison - Chloro-
form, chloral, bromide of pot
assium, physostigma, tobacco
and nicotia have been used
with good results -
Belladonna and atropia have
also been suggested as
antidotes to strychnia, and
a case is recorded in which
atropia having been injected

subcutaneously, the patient recovered. One sixth of a gram was thus used three times, at intervals of ten minutes.—.

An Essay

on

Fractures

Respectfully presented

to the

Faculty of the School of Medicine

of the

University of Maryland,

as an

Inaugural Thesis

for the

Degree of Doctor of Medicine,

by Cyrus B. Phillips Aged 23 yrs.

of Denfield Count. Co. New Jersey.

Period of Study, four years.

Preceptor, Chas. C. Phillips

Jan. 10th 1882. of same place.

There is no class of injuries to which the Human organism is more liable, than fractures of the bone, partly on account of their exposed condition, and also, not yielding to force when applied against them.
There is no class of injuries more calculated, from unsuccessful treatment, to bring approbium upon the reputation of the surgeon, or render him more liable to suits for malpractice hence the great necessity of all surgeons making fractures the subject of great study and research, as to their nature, and treatment and most

Surgeons approch them with
apprehension + dread, especially those
fractures whose diagnosis are
obscure. All bones are liable to frac-
ture, but the long bones of the ex-
tremities more than the flat-bones. the
former having a more extended mo-
tion, and a greater leverage for
the action of muscles. While
some of the latter, as the scapula
are more imbedded in the soft-
parts, while others as the bones
of the skull, are protected by
their arched form, which gives them
the power to resist, without breaking.
Fractures may be defined as a solution
of continuity of any portion of the

osseous system, and may occur at any time of life, even before birth to old age; but more particularly during the latter part of life, from the fact of the bones becoming more osseous, and brittle, therefore, easier broken.

Fractures may occur either from direct or indirect external causes, or from muscular action.

Direct causes are those where the force is applied immediately to the bone, as when struck by a blow, or the passage of a vehicle over it and take place where the force received.

Indirect causes are applied at a

distance from the injury, as a fall upon the hands or feet fracturing the arm or leg. When occasioned by muscular action alone, the bones have generally undergone some structural change, instances have been known of bones being fractured by turning in bed.

Fractures may be divided into complete and incomplete, the former when the fibres are completely severed, and the latter when some remain intact. Again another division may be made from the line of fracture transverse, when the bone is severed horizontally oblique, when the line of fracture is in an oblique direction and longitud-

inal, when it is in the line of the axis of the bone.

Transverse fractures where the line of disunion is entirely horizontal are extremely rare, there being always more or less obliquity.

Another class of fractures is called impacted, where one of the fractured ends is driven, and becomes impacted into the other as in the neck of the femur.

Another important division of fractures is into simple, compound, and Comminuted. Simple fractures are those where there is no wound of soft parts opening externally. In all fractures there must necessarily be

some laceration of surrounding soft-parts, but unless the wound opens externally it is simple.

Compound are those accompanied with an external wound, sometimes the fractured ends escaping therefrom. Communited are those where the bone is broken into numerous pieces.

The various constitutional diathesis of the system, as scorbutic, cancer, scrofulous, syphilitic, act as predisposing causes in producing fracture, and influencing reparation on a great degree, the same as it does in disease of soft parts.

Sometimes a bone is not completely

broken through on all its fibres, those on the convexity only breaking, the others remaining in contact, similar to effect produced by bending a green stick. This most happens in Children.

When called to a case of fracture, the first thing that strikes our attention is deformity of the part, occasioned by the muscles attached to the fragments contracting in such a way as to cause overriding of the ends. Causing shortening of the limb or a lateral displacement.

The first is also known from the crepitation of the fragments, and fluctuation of blood from rupture of

blood vessels, and also often a time from the effect of inflammation which is sure to ensue.

This swelling is sometimes very perplexing to the surgeon in examining and deciding the nature of the accident. Therefore, the wounded fractured bone is examined after the latter.

When a fractured bone is examined at the seat of fracture will be felt, and heard a grating sound, which is called crepitus occasioned by the rubbing together the opposing surfaces of the fractured bone. In unfractured parts the wrist is not heard, nor when there is

overlapping of fragments, until extension brings them into opposition when it may be heard.

Another symptom is that, whereas, the natural function of the part is lost yet there is preternatural mobility; the patient not being able to use the limb, but that portion below the fracture may be moved freely in any direction by the surgeon, although with great suffering

Pain always accompanies a case of fracture from the tearing of the surrounding soft parts and lacerations of their nervous filaments; and from the same cause it is often accompanied with spasmodic twitchings.

Causing great suffering to patients. Therefore, the necessity of handling such cases with great care, and it may be often necessary to use anesthetics. From the contusion of the nerve there is often a numbness, which may extend to the whole limb, or the whole body.

The diagnosis of fractures is sometimes easy, and at other times extremely difficult, especially when near joints. They may be complicated with effusions, dislocations, and lesions of the joints and should be examined carefully with a full knowledge of the above symptoms, and all the circumstances of the case and with an appreciation

should be conducted with great gentleness, to void unnecessary pain or to aggravate inflammation, yet it should be through enough to satisfy the examiner in his diagnosis, and enable him at once to come to a correct conclusion, and apply those means that are necessary for repose, and treatment of the part, and avoid life long evils that cannot be remedied.

Many a deformed or useless limb owes its existence to the fact of the surgeon, not making a through examination at the time of injury, causing his diagnosis to be wrong and not finding out the mistake until to late to rectify

the defect. Anaesthetics are often of use, when the pain is great or in nervous sensitive subjects, during the manipulations necessary for a correct knowledge of the injury, and also to allay any muscular spasm or contraction consequent upon the condition of the parts.

In foretelling the probable result of a fracture we should take into consideration the age, the general state of the health, variety of fracture, and injuries to surrounding parts. Moreover, imperfect, and partial fractures shed with severity any deformity or lost of function, but when it is an oblique fracture with

much displacement, and in a subject where vitality is much lowered by coexistent cachexia, or when a nerve, or important blood-vessels have been lacerated the case is far more serious and requires great attention to the health, and the position of the parts to bring about a good result.
Let us now enquire into the mode which nature makes in producing reparation of a fractured bone, and we will find them as different from what she does in injuries of soft parts.
Consequent upon a fracture more or less blood is extravasated, also inflammation is established and the

first eight, or ten days, the powers of the system is employed in absorbing this blood and the lymph, and products of the inflammation, or in other words this time is required in preparing the parts for healing.

Then commencing the effusion of the proper material for healing, which is a structureless granular material like fibrin, and is placed in rigid to the position of the ends of the bone, in one of two positions, first enclosing them externally and internally as a sheath, or second poured out between the surfaces of the broken ends of the bone, or in the angle

formed by their overlapping.
The first mode is called provisional callus, and is found principally in fractures of the ribs, or in children, where it is almost impossible to keep quite long healing, and also in the lower animals, whilst the second mode, called intermediate callus, is found usually in the human subject.
The second step in repair is ossification, and this may occur (1) by means of a nucleated blastema, or (2) by ossification of the granules (and (3) by the material passing through a state of cartilage, or fibrous tissue.

The third, and last step is absorption, wherein, the superabundant callus is absorbed, and the reunited bone is modeled externally into its normal state, and the internal cells cleared of the internal callus, and the medullary canal made continuous as it was before the injury.

The time required for the performance of this repair, varies from circumstances but is seldom completed under seventy days, and may be prolonged much longer.

Sometimes from deficiency of vitality or taint of the constitution, or from a deficient supply of blood the

union between fractured bones remains fibrous, or does not unite at all, instanced in the case of fractured neck of femur, within capsule, or fractured patella, or olecranon, which generally remains cartilaginous.

Fracture of the neck of the femur within capsule, remains disunited, from the fact of the parts receiving their nourishment only through the bloodvessels of the round ligament the supply is deficient, and not able to throw out callus for their repair.

Certain diathesis causes a want of effort of repair in the parts or the plasma is deficient and impo-

fectly organized, and also from the same cause consolidated fractures dis-united, as in the case of scurvy, causing absorption of the new deposit between the fractured ends. In such cases there is formed what is called false joint, the ends becoming rounded and covered not with articular cartilage, or a synovial membrane, but with a dense fibrous substance and may ever be joined together by a similar texture leaving a great latitude for motion, but an entirely useless limb, such cases are more frequent in military practice than civil, from the fact of less opportunities of treating, and from the nature and mode of infliction of the injury. In treating fractures the indications are three fold. 1st Reduction, bringing the opposing surfaces of the fragments into juxtaposition. 2ond Retention, keeping them together, and 3rd To pre-

ment redisplacement, and maintain rest, and such a condition of parts, as may be conducive of healing. Reduction is accomplished, 1st by Extension, 2nd counter-extension, and 3rd Coaptation. No force or unnecessary haste should be use, but the surgeon after placing the limb in such a position as to relax those muscles that oppose the end in view, grasps it on the distal aspect of the fracture, gently and gradually, but determinedly, makes extension until the surfaces of the fragments are brought into same level, at the same time using the other hand above the seat of fracture, to make counter-extension, and coaptating movements are made until the fragments are placed in immediate and accurate contact. Extension, and counter-extension may be made by assistants, but coaptation should always be done by the hands and fingers of the surgeon himself. After the fracture is reduced the next indi-

tions is retension, or keeping the ends in accurate contact until they unite, and this must be done by keeping the parts perfectly at rest by means of mechanical contrivances, and the simpler the better, but the applying them demand sometimes the highest surgical skill and ingenuity. Immobility of the fractured bone is the essential aim in the treatment of all fractures. This object is obtained by the use of splints, pads, or cushions, and bandages and also by special mechanical apparatus of various surgeons. It is also necessary in retension that extension of the limb be maintained, which is best done by weights pulleys, adhesive straps, or bandages tied to the splints. Splints are made of different material, such as wood, gutta percha, leather, pasteboard, or anything of sufficient firmness to give support to limb. They are of different shapes, some are straight, others angular, or cut to the shape of the limb. All splints should be well padded with cotton, or wool

before application to prevent any injury from pressure, and when thus prepared they should be applied firmly to the limb by inelastic bandage, or straps in such a manner that all motion of the injured limb is prevented. The seat of fracture should always if possible be left exposed to the surgeons inspection, that he may be able to correct, immediately, any irregularity that may occur in the position of the fracture.

There are various surgical apparatus that pretend and do accomplish all the indications of treatment more easily, but as their possession is not of many surgeons, the appliances must be in accordance of general rules. Another mode of treatment is the immovable apparatus, or the starch, or dextrine bandage. The fracture being reduced, the limb throughout its whole

extent is encased in a bandage, and starch, or dextrine applied over the whole surface, them over this is applied pasteboard splints, moulded to the shape of the limb, and thoroughly starched upon both sides, and covered well with a roller bandage. After which application starch is again evenly distributed over the whole apparatus, and the dressing is complete. Another immovable apparatus is the plaster of Paris bandage. This bandage should be made of crinoline, or of some loose textured fabric having dry powdered plaster rubbed into its interstices, and made ready for use by being well wetted for two or three minutes, and rubbing additional plaster upon it, as it is unrolled. These immovable apparatus should

not be used as primary dressing to fractures, for the reason, that contraction ensues upon the drying of the bandage, and should any swelling of the limb occur, dangerous constriction might occur, producing disastrous results.

Compound, and comminuted fractures are treated upon the same general principles as simple fractures, together with attention to the wound. The reduction should be accomplished immediately, after the injury if possible the protrusion of the end of the fractured bone being reduced by gentle traction, the surgeon stitching the wound with his fingers if necessary, or as a last resort using the scalpel to enlarge it, or sawing off the end of the bone. Once reduced the wound should be brought together

and closed by lint, wet with carbolized oil, to exclude the air, and after inflammation has abated retention apparatus may be applied and the case treated as simple fracture. These cases are frequently complicated with tetanus, pyaemia, and erysipelas which should be attended to on general principles. Compound fractures sometimes demand amputation, but the surgeon should withhold the knife, until he has well studied the only procedure that will save the life of his patient. In treating all fractures, if the apparatus gives pain or discomfort it should be removed and again applied and adjusted, and a very good rule, of its proper application, is by making the patient feel comfortable and free from pain.

In conclusion, we find that the treatment of fractures is simple, but that its fulfilment is difficult, and sometimes, even when we exercise the greatest skill, the result is not what we could desired, therefore, we should always be extremely guarded in our prognosis, and should for our own protection, inform the patient, and his friends, all the difficulties of the case.